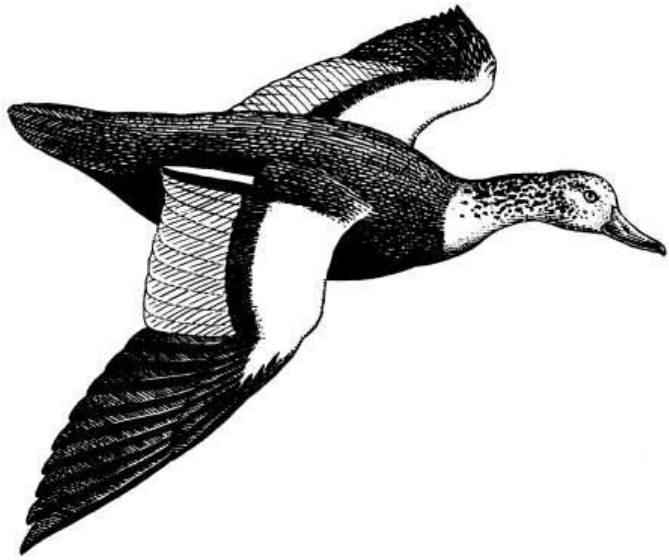
# TWSG NEWS

The bulletin
of the

**THREATENED WATERFOWL SPECIALIST GROUP**



**No. 14, October 2003**

IUCN
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INTERNATIONAL

# ABOUT THE GROUP

The Threatened Waterfowl Specialist Group (formerly Threatened Waterfowl Research Group) was established in October 1990 and is coordinated from the Wildfowl & Wetlands Trust at Slimbridge, UK, as part of the IUCN-SSC/Wetlands International Waterbird Network. The TWSG and its bulletin aim to identify Anatidae taxa that are threatened with extinction, to gather and exchange information on these taxa and to promote their conservation. Membership is worldwide and includes 923 organisations, groups and individuals who are active or interested in threatened waterfowl research and conservation. Addresses of TWSG members, further information about the TWSG, this bulletin, and/or membership can be obtained from Baz Hughes at the address below.


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## TWSG-Forum: list-server of the Threatened Waterfowl Specialist Group

The TWSG-Forum list-server, maintained by the Wildfowl & Wetlands Trust from Slimbridge, UK, provides a vehicle for the on-line exchange of information about globally threatened or near threatened Anseriformes (ducks, geese, swans and screamers). To subscribe, e-mail *majordomo@wwt.org.uk* with "subscribe twsg-forum" (without quotes) in the body of your e-mail message. To unsubscribe, simply replace the word “subscribe” with “unsubscribe”. To circulate a message to the Forum, send it to: *twsg-forum@wwt.org.uk*. When submitting information please note that we may include such items in future issues of TWSG News.

**TWSG Web Site:** *http://www.wwt.org.uk/threatsp/twsg/*

This issue of TWSG News was edited by Baz Hughes. Illustrations are by BirdLife International, N. Kraneis/Bulgarian Society for the Protection of Birds, Joe Blossom, Steve Carter, Mark Hulme, Paul Johnsgard, Libby Millington, Peter Scott and Thelma Sykes.

# EDITORIAL

A few months ago, I feared this issue of TWSG News would be rather thinner than the last edition. I needn't have worried as we have had a marvellous response with a record-breaking 24 news items, and 20 features. Thank you to all contributors, and also to David Li who allowed us to reprint news items from the May 2003 Asian Waterbird Census newsletter.

TWSG membership continues to grow. We currently have 923 members in 142 countries. A total of 445 members are listed in our species experts database. Expert members have been appointed for 58 of the 59 threatened waterfowl taxa. If anyone would like to be listed for Emperor Goose (which is now recognised as Near Threatened), please let me know.

Information dissemination remains a key objective of the TWSG – through the maintenance of e-mail list servers, our website, the publication of scientific material, and this bulletin. We now maintain six list servers (TWSG-Forum (300 members), Steller's Eider (49), Ferruginous Duck (36), Brazilian Merganser (19), White-headed Duck (69), and Ruddy Duck control (17)). Details of how to join and send messages to the TWSG-Forum can be found on the inside front cover of this bulletin. The TWSG's web presence continues to grow. By the time you receive this bulletin, it will be available for download from our website. A profile of the TWSG can now be found on the IUCN-SSC website (see p. 25). Over the last three years, the TWSG has published a total of 73 scientific papers, reports and popular articles. This includes many high quality scientific publications by our Regional Chair for Africa, Eurasia, and the Middle-East, Andy Green. Many of Andy's papers can be downloaded from his website (see p. 25). I'd be grateful to hear from any other TWSG members with their own personal websites. Further information on TWSG activities can be found in our triennial report (see p. 59).

A new Memorandum of Co-operation has been signed between the TWSG and Wetlands International. This describes the intentions of each party within the period 2003 to 2005. A triennial work plan and budget have also been produced for Wetlands International. Wetlands International have subsequently provided a grant towards the production and circulation of this bulletin. My sincere thanks to Tunde Ojei and Doug Taylor for their continued support and encouragement.

The last paper in this issue of TWSG News highlights a dilemma that site designation under national and international law is no guarantee of a healthy conservation status. Without appropriate management, exceptionally important sites can continue to be seriously degraded. The El Hondo wetland in the Valencian region of Spain, previously the most important breeding site in Europe for Marbled Teal and White-headed Duck, has never been more threatened (see p. 90). On a positive note, however, the global population of Baikal Teal appears to have increased markedly in recent years (see p. 85), so much so that the species will probably be downgraded to Near Threatened status in the 2004 Red List (see p. 82).

Could I please end with a plea for help? You may all be getting rather familiar with the line drawings used in TWSG News. Any line drawings of threatened waterfowl for use in future issues would be greatly appreciated. I hope you enjoy reading the fourteenth edition of TWSG News.

**Baz Hughes**

# THREATENED WATERFOWL SPECIES AND SUB-SPECIES

In the following list of globally threatened and near threatened Anseriformes species and sub-species, species categorisations follow the 2002 IUCN Red List of Threatened Species (IUCN 2002) whilst sub-species were categorised during the compilation of the IUCN-SSC Anseriformes Action Plan (TWSG *In Prep*.). The TWSG would welcome comment on this list of threatened Anseriformes, especially notification of new data which may lead to re-categorisation of any taxa.

## SPECIES

| COMMON NAME | LATIN NAME |
|---|---|
| **EXTINCT SINCE A.D. 1600** | |
| Mauritian Shelduck | *Alopochen mauritania* |
| Réunion Shelduck | *Mascarenachen kervazoi* |
| Mauritian Duck | *Anas theodori* |
| Amsterdam Island Duck | *Anas marecula* |
| Labrador Duck | *Camptorhynchus labradorius* |
| Auckland Islands Merganser | *Mergus australis* |
| **CRITICALLY ENDANGERED** | |
| Crested Shelduck | *Tadorna cristata* |
| Campbell Island Teal | *Anas nesiotis* |
| Pink-headed Duck | *Rhodonessa caryophyllacea* |
| Madagascar Pochard | *Aythya innotata* |
| Brazilian Merganser | *Mergus octosetaceus* |
| **ENDANGERED** | |
| White-headed Duck | *Oxyura leucocephala* |
| Swan Goose | *Anser cygnoides* |
| White-winged Duck | *Cairina scutulata* |
| Blue Duck | *Hymenolaimus malacorhynchos* |
| Hawaiian Duck | *Anas wyvilliana* |
| Meller's Duck | *Anas melleri* |
| Madagascar Teal | *Anas bernieri* |
| Brown Teal | *Anas chlorotis* |
| Scaly-sided Merganser | *Mergus squamatus* |

## SPECIES

| COMMON NAME | LATIN NAME |
|---|---|
| **VULNERABLE** | |
| West Indian Whistling-duck | *Dendrocygna arborea* |
| Lesser White-fronted Goose | *Anser erythropus* |
| Hawaiian Goose | *Branta sandvicensis* |
| Red-breasted Goose | *Branta ruficollis* |
| Salvadori's Teal | *Salvadorina waiguensis* |
| Eaton's Pintail | *Anas eatoni* |
| Laysan Duck | *Anas laysanensis* |
| Philippine Duck | *Anas luzonica* |
| Auckland Island Teal | *Anas aucklandica* |
| Baikal Teal | *Anas formosa* |
| Marbled Teal | *Marmaronetta angustirostris* |
| Baer's Pochard | *Aythya baeri* |
| **LOW RISK (NEAR THREATENED)** | |
| Northern Screamer | *Chauna chavaria* |
| Emperor Goose | *Anser canagica* |
| Blue-winged Goose | *Cyanochen cyanopterus* |
| Orinoco Goose | *Neochen jubata* |
| Chubut Steamer-duck | *Tachyeres leucocephalus* |
| Hartlaub's Duck | *Pteronetta hartlaubi* |
| Spectacled Duck | *Anas specularis* |
| Ferruginous Duck | *Aythya nyroca* |

## SUB-SPECIES

| | |
|---|---|
| **EXTINCT SINCE A.D. (1600)** | |
| Coue's Gadwall | *Anas strepera couesi* |
| Mariana Mallard | *Anas platyrhynchos oustaleti* |
| Rennell Island Grey Teal | *Anas gibberifrons remissa* |
| Chatham Island Teal | *Anas chlorotis ssp. nov.* |
| Niceforo's Pintail | *Anas georgica niceforoi* |
| **CRITICALLY ENDANGERED** | |
| Borrero's Cinnamon Teal | *Anas cyanoptera borreroi* |

## SUB-SPECIES

| COMMON NAME | LATIN NAME |
|---|---|
| **ENDANGERED** | |
| Madagascar White-backed Duck | *Thalassornis leuconotus insularis* |
| New Zealand Grey Duck | *Anas superciliosa superciliosa* |
| Tropical Cinnamon Teal | *Anas cyanoptera tropica* |
| Andaman Teal | *Anas gibberifrons albogularis* |
| Galapagos Pintail | *Anas bahamensis galapagensis* |
| Crozet Islands Pintail | *Anas eatoni drygalskii* |
| Colombian Ruddy Duck | *Oxyura jamaicensis andina* |
| **VULNERABLE** | |
| Recherche Cape Barren Goose | *Cereopsis novaehollandiae grisea* |
| Middendorf's Bean Goose | *Anser fabalis middendorffi* |
| Thick-billed Bean Goose | *Anser fabalis serrirostris* |
| Tule Greater White-fronted Goose | *Anser albifrons gambeli* |
| Dusky Canada Goose | *Branta canadensis occidentalis* |
| Peruvian Torrent Duck | *Merganetta armata leucogenis* |
| Colombian Torrent Duck | *Merganetta armata colombiana* |
| Australian Cotton Pygmy Goose | *Nettapus coromandelianus albipennis* |
| Merida Teal | *Anas andium altipetens* |
| Kerguelen Pintail | *Anas eatoni eatoni* |
| **LOW RISK (NEAR THREATENED)** | |
| American Comb Duck | *Sarkidiornis melanotus sylvatica* |
| Florida Duck | *Anas fulvigula fulvigula* |
| Australian Black Duck | *Anas superciliosa rogersi* |
| Lesser Grey Duck | *Anas superciliosa pelewensis* |
| Andean Teal | *Anas andium andium* |
| South Georgia Pintail | *Anas georgica georgica* |
| South American Pochard | *Netta erythropthalma* |

**REFERENCES**

IUCN. 2002. 2002 IUCN Red List of Threatened Species. Downloaded from *www.redlist.org*.

TWSG. *In Prep*. Global Action Plan for the Conservation of Anseriformes (Ducks, Geese, Swans and Screamers). IUCN, Gland, Switzerland.

# IUCN RED LIST CATEGORIES AND CRITERIA

| CRITERION A. REDUCTION IN POPULATION SIZE | | | |
|---|---|---|---|
| **Main Criteria** | **Sub-criteria** | **Qualifiers** | |
| Reduction ≥90% in 10 years or 3 generations (**CR**)<br><br>Reduction ≥70% in 10 years or 3 generations (**EN**)<br><br>Reduction ≥50% in 10 years or 3 generations (**VU**) | **1**. Reduction in the past (observed, estimated, inferred or suspected), where the causes are clearly reversible AND understood AND ceased, *based on a-e opposite* | **a**. Direct observation | **A1a** |
| | | **b**. Index of abundance | **A1b** |
| | | **c**. Decline in area of occupancy, extent of occurrence, and/or quality of habitat | **A1c** |
| | | **d**. Actual or potential levels of exploitation | **A1d** |
| | | **e**. Effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites | **A1e** |
| Reduction ≥80% in 10 years or 3 generations (**CR**)<br><br>Reduction ≥50% in 10 years or 3 generations (**EN**)<br><br>Reduction ≥30% in 10 years or 3 generations (**VU**) | **2**. Reduction in the past (observed, estimated, inferred or suspected), where the reduction or its causes may not be reversible OR understood OR have ceased, *based on a-e opposite* | **a**. As a above | **A2a** |
| | | **b**. As b above | **A2b** |
| | | **c**. As c above | **A2c** |
| | | **d**. As d above | **A2d** |
| | | **e**. As e above | **A2e** |
| Reduction ≥80% in 10 years or 3 generations (**CR**) *to 100 years max*<br><br>Reduction ≥50% in 10 years or 3 generations (**EN**) *to 100 years max*<br><br>Reduction ≥30% in 10 years or 3 generations (**VU**) *to 100 years max* | **3**. Reduction in the future (projected or suspected), *based on b-e opposite* | **b**. As b above | **A3b** |
| | | **c**. As c above | **A3c** |
| | | **d**. As d above | **A3d** |
| | | **e**. As e above | **A3e** |
| Reduction ≥80% in 10 years or 3 generations (**CR**) *to 100 years max*<br><br>Reduction ≥50% in 10 years or 3 generations (**EN**) *to 100 years max*<br><br>Reduction ≥30% in 10 years or 3 generations (**VU**) *to 100 years max* | **4**. Reduction includes the past and the future (observed, estimated, inferred, projected or suspected) where the reduction or its causes may not be reversible OR understood OR have ceased, *based on a-e opposite* | **a**. As a above | **A4a** |
| | | **b**. As b above | **A4b** |
| | | **c**. As c above | **A4c** |
| | | **d**. As d above | **A4d** |
| | | **e**. As e above | **A4e** |

| **CRITERION B. SMALL RANGE fragmented, declining or fluctuating** | | | |
|---|---|---|---|
| **Main Criteria** | **Sub-criteria** | **Qualifiers** | |
| **1**. Extent of occurrence estimated <100km$^2$ (**CR**) *with at least two of a,b or c*<br><br>Extent of occurrence estimated <5,000km$^2$ (**EN**) *with at least two of a, b or c*<br><br>Extent of occurrence estimated <20,000km$^2$ (**VU**) *with at least two of a, b or c* | **a**. Severe fragmented<br><br>*or*<br><br>At 1 location (**CR**)<br><br>At ≤5 locations (**EN**)<br><br>At ≤10 locations (**VU**) | None | **B1a** |
| | **b**. Continuing decline (observed, inferred or projected) *in any of i-v opposite* | **i**. Extent of occurrence | **B1bi** |
| | | **ii**. Area of occupancy | **B1bii** |
| | | **iii**. Area, extent and/or quality of habitat | **B1biii** |
| | | **iv**. Number of locations or subpopulations | **B1biv** |
| | | **v**. Number of mature individuals | **B1bv** |
| | **c**. Extreme fluctuations *in any of i-iv opposite* | **i**. Extent of occurrence | **B1ci** |
| | | **ii**. Area of occupancy | **B1cii** |
| | | **iii**. Number of locations or subpopulations | **B1ciii** |
| | | **iv**. Number of mature individuals | **B1civ** |
| **2**. Area of occupancy estimated <10km$^2$ (**CR**) *with at least two of a, b or c*<br><br>Area of occupancy estimated <500km$^2$ (**EN**) *with at least two of a, b or c*<br><br>Area of occupancy estimated <2000km$^2$ (**VU**) *with at least two of a, b or c* | **a**. As a above | None | **B2a** |
| | **b**. As b above *in any of i-v opposite* | **i**. Extent of occurrence | **B2bi** |
| | | **ii**. Area of occupancy | **B2bii** |
| | | **iii**. Area, extent and/or quality of habitat | **B2biii** |
| | | **iv**. Number of locations or subpopulations | **B2biv** |
| | | **v**. Number of mature individuals | **B2bv** |
| | **c**. As c above *in any of i to iv opposite* | **i**. Extent of occurrence | **B2ci** |
| | | **ii**. Area of occupancy | **B2cii** |
| | | **iii**. Number of locations or subpopulations | **B2ciii** |
| | | **iv**. Number of mature individuals | **B2civ** |

| **C. SMALL POPULATION declining or fluctuating** | | | |
|---|---|---|---|
| **Main Criteria** | **Sub-criteria** | **Qualifiers** | |
| Population <250 mature individuals (**CR**) *and either 1 or 2*<br><br>Population <2,500 mature individuals (**EN**) *and either 1 or 2*<br><br>Population <10,000 mature individuals (**VU**) *and either 1 or 2* | **1**. Continuing decline ≥25% in 3 years or 1 generation (**CR**) *to 100 years max*<br><br>Continuing decline ≥20% in 5 years or 2 generations (**EN**) *to 100 years max*<br><br>Continuing decline ≥10% in 10 years or 3 generations (**VU**) *to 100 years max* | None | **C1** |
| | **2**. Continuing decline (observed, projected or inferred) and *a and/or b opposite* | **ai**. all sub-pops ≤50 (**CR**)<br>all sub-pops ≤250 (**EN**)<br>all sub-pops ≤1,000 (**VU**) | **C2ai** |
| | | **aii**. ≥90% mature individuals in 1 sub-pop (**CR**)<br>≥95% mature individuals in 1 sub-pop (**EN**)<br>all individuals in 1 sub-pop (**VU**) | **C2aii** |
| | | **b**. Extreme fluctuations in number of mature individuals | **C2b** |
| **D1. VERY SMALL POPULATION** | | | |
| Population <50 mature individuals (**CR**)<br><br>Population <250 mature individuals (**EN**)<br><br>Population <1,000 mature individuals (**VU**) | None | None | **D1** |
| **D2. VERY SMALL RANGE** | | | |
| Area of occupancy typically <20km$^2$ or typically <6 locations (**VU** only - capable of becoming CR or EX in v. short time) | None | None | **D2** |
| **E. QUANTITATIVE ANALYSIS** | | | |
| Probability of extinction in wild >20% in 20 years or 5 gens (**EN**) *to 100 years max*<br><br>Probability of extinction in wild is 10% in 100 years (**VU**) | | | **E** |

# NEWS ROUNDUP

## BIRDLIFE TO ASSESS ENVIRONMENTAL IMPACT OF WAR IN IRAQ

In April 2003, BirdLife International announced it will send five teams of field biologists to Iraq to assess the impact of the war on the conservation status of key habitats, sites and species. A team of BirdLife staff from within the Middle East and Britain will travel to the country as soon as it is safe to do so. Once there they will carry out a one-month assessment of a selection of sites in order to make recommendations for further action.

This initial survey is to be followed by four more that will look in more detail at all 42 of Iraq's Important Bird Areas (IBAs), and focus on the Mesopotamian Marshes Endemic Bird Area (EBA) and the globally threatened birds for which Iraq is particularly important.

Over the past decade the Mesopotamian Marshes have been almost entirely drained, threatening a number of Globally Threatened Birds. Particularly dependent on the marshlands are the Dalmatian Pelican *Pelecanus crispus*, Pygmy Cormorant *Phalacrocorax pygmeus*, Marbled Teal, Imperial Eagle *Aquila heliaca*, Slender-billed Curlew *Numenius tenuirostris* and an endemic sub-species of the Little Grebe *Tachybaptus ruficollis iraquensis*. The Goliath Heron *Ardea goliath*, Sacred Ibis *Threskiornis aethiopica*, and African Darter *Anhinga rufa* whose world population has been steadily falling, are also known to breed in the marshes. Furthermore, the marshes have been singled out by BirdLife International as one of the eleven non-marine wetland areas in the world with Endemic Bird Area status. They support almost the entire global population of two species, the Basrah Reed Warbler *Acrocephalus griseldis* and Iraq Babbler *Turdoides altirostris* as well as most of the world population of Grey Hypocolius *Hypocolius ampelinus*.

It is anticipated that the BirdLife teams will also work closely with the United Nations Environment Programme, a network of Iraqi ornithologists and conservationists, and other agencies committed to the conservation of biodiversity in Iraq. The information obtained will be vital for future conservation and hopefully form the basis for a new era of conservation in Iraq.

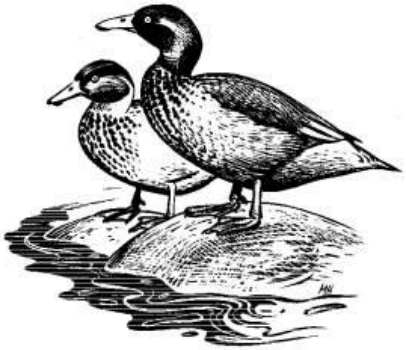
**BirdLife International website**
*www.birdlife.net*

## BLUE DUCK'S THREATENED STATUS INCREASED TO "ENDANGERED"

The World Conservation Union's (IUCN) raising of the international conservation status of New Zealand's Blue Duck or Whio was a timely warning to New Zealand according to Conservation Minister Chris Carter. On 10 October 2002, Mr Carter said the reassessment of Whio from Vulnerable to Endangered on the IUCN Red List was a sobering confirmation of the threat classification accorded the species by the Department of Conservation (DoC).

Stoats appear to be the biggest predator for this nationally endangered species. Video surveillance of Whio nesting in Fiordland has shown stoats killing them on the nest and eating their eggs.

"Whio is one of New Zealand's most distinctive birds and is found nowhere else in the world. Many people treasure their sightings of them bobbing down the rapids on wild backcountry rivers. Sadly, the bird is in serious trouble and the World Conservation Union have now recognised the peril it is in," said Mr Carter.



Whio are still relatively widespread in New Zealand, with population strongholds in the central North Island, in Kahurangi National Park and in South Westland and Fiordland. But with nests being robbed and nesting females falling prey to stoats, the species is in gradual decline.

Mr Carter says DoC has a recovery plan in action for the Whio, which has an estimated population of 2,000-3,000 individual birds. The focus of the recovery plan is on identifying the reasons for decline and deciding how best to manage those factors. The recovery team has already identified the key factors behind the decline of Whio in particular habitats, but it is important to establish whether those reasons are the same throughout the country, or whether each habitat is different.

The issue of predator protection for this species is also not straightforward. Whio cannot simply be put on an island, because there are no islands with the right habitat for this species. One central North Island Whio habitat does have protection from stoats because it forms part of mainland island sanctuary, and DoC is investigating other Blue Duck habitats with predator protection in mind.

Mr Carter said the best news for the species in recent times was the establishment of the Central North Island Blue Duck Conservation Trust which arose out of the renewal of resource consents for the Tongariro Power Scheme. The Trust was established in August 2002 through an agreement between Genesis Power, DoC and Forest and Bird.

This Trust, thanks to funding from Genesis, will be putting $1.5 million into the protection of this endangered species over the next 10 years. Mr Carter said that the survival of Whio was not assured and would require a major conservation effort over the coming years. “But this is a fight we must win as a wild river that lacks the call of the Whio has lost part of its soul or mauri.”

**New Zealand Government’s Biodiversity website**
*http://www.biodiversity.govt.nz/news/media/current/10oct02.html*

## BRAZILIAN MERGANSER RE-DISCOVERED IN ARGENTINA

After nearly ten years since the last confirmed sighting, the Brazilian Merganser has been rediscovered in Argentina. In May 2002, biologist Jorge Baldo saw a single bird on the Uruzú river in the Urugua-í basin in Misiones Province, northern Argentina.

**Andrés Bosso**
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## BRAZILIAN MERGANSER WORKSHOP

On 29 October 2002, the second meeting of the Brazilian Merganser Recovery Team was held in Brasilía. The meeting reviewed the current status and conservation of the species; finalised the action plan text and publication details; agreed on the 2003-2005 work programme; identified priority projects for subsequent fund-raising action; and agreed on the remit, membership and means of operation of the Brazilian Merganser Recovery Team. A total of 18 people attended the meeting, including representatives from three NGOs (BirdLife International, Conservation International, and Terra Brasilis), four universities (Brasília, Fluminense (Rio de Janeiro), Londrina State, and São Paulo), and a

multi-disciplinary team from the Brazilian Government conservation body IBAMA. Baz Hughes (TWSG) and Bruce Dugger (Oregon State University) also attended.

It was clear from the meeting that there is great enthusiasm for saving the Brazilian Merganser, both from governmental and NGO sectors. All three NGOs present at the meeting plan to proceed with conservation projects for the merganser over the next three years. This will include a detailed study of the bird's breeding ecology at the world's most important site, Serra da Canastra National Park in South Central Brazil. The TWSG will help plan this project which will collect basic information needed to adequately protect the species. This will include information on population parameters (e.g. nest success, hatching success, and fledging success) and habitat use (through a radio-tracking study throughout the annual cycle).

**Baz Hughes**
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## BRAZILIAN MERGANSER IN JALAPÃO, TOCANTINS, BRAZIL

This news item is a summary of the unpublished report: Pacheco, J.F. & Silva e Silva, R. 2002. The Brazilian Merganser *Mergus octosetaceus* in Jalapão, Tocantins, Brazil: results of a preliminary survey. BirdLife International – Brasil Program, São Paulo.

The Brazilian Merganser is one of the most threatened birds in the Americas, categorised as Critically Endangered by IUCN. Its population is small and declining – less than 250 birds survive in the wild. Although originally occurring in three countries, Paraguay, Argentina, and Brazil, Brazil holds most of the remaining population.

During a ten-day period, from 26 August to 4 September 2002, the Wildfowl & Wetlands Trust funded BirdLife International - Brasil Program to undertake a Brazilian Merganser survey in the Jalapão region, in eastern Tocantins state near the border with Bahia, Maranhão and Piauí. The main study areas were the recently decreed Jalapão State Park (158,880ha; P.E. Jalapão) and the neighbouring Jalapão Environmental Protection Area.

A family group of six Brazilian Mergansers was observed at 1745h on 27 August 2002 on a small tributary of the Rio Novo (10°17'08''S, 46°53'02''W). At the observation site, there was a 5m long stretch of still water used by tourists for swimming, locally known as "piscina natural". This was the sole record of the species made during nearly 60 hours of fieldwork. The merganser group was composed of two adults and four young. One young bird was about half the size of an adult bird, the other three were about 75% the size of an adult. One adult bird led the group while the other followed behind.

We could not assess if the group was feeding or resting before our arrival. They appeared to be just moving downstream. Upon seeing us, the adults got agitated and swam faster downstream, taking advantage of the flow, first swimming around an islet. The family was observed with 10x40 binoculars for about 15 seconds at a distance of 15-20m. As soon as the birds

noticed us, they swam towards the opposite bank of the river and behind the islet. The stream at the observation site was at most 1.6m deep, but on average only 30-40cm at this time of the year. The bottom was clearly visible with a good growth of broad-leaved macrophytes.

**José Fernando Pacheco, Robson Silva E Silva & Jaqueline Goerck**
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## BRAZILIAN MERGANSER STUDY AT SERRA DA CANASTRA

Brazilian NGO Terra Brasilis has initiated a conservation program for the Brazilian Merganser in the Serra da Canastra region. This program has four main areas of work (based on the priorities set out in the Brazilian Merganser action plan): studies on Brazilian Merganser breeding ecology, an inventory of distribution within the Canastra range, environmental education in both urban and rural areas (schoolchildren, teachers, farmers and other local people), and a campaign to market the species presence with the aim of ultimately making it a flagship species for the region. To this end, Terra Brasilis is currently producing Brazilian Merganser T-shirts, tie pins, coffee mugs, calendars and caps. The Terra Brasilis Brazilian Merganser conservation program coordinator is Lívia Lins, who previously ran the organisation's Lear's Macaw Program.

**Lívia Lins**
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## CAMPBELL ISLAND TEAL CAN GO HOME

The flightless Campbell Island Teal will soon return to the island from which it takes its name, following a successful campaign to exterminate the Brown Rat *Rattus norvegicus*. The Campbell Island Teal is endemic to New Zealand, confined for many decades to Dent Island, an offshore islet of Campbell Island, 700km south of New Zealand.

The duck became extinct on Campbell Island itself following the introduction of rats by sealing and whaling ships. A 1990 survey estimated the breeding population at no more than 25 pairs, and the species is listed as Critically Endangered. The tiny Dent Island population is vulnerable to severe weather, disease, and the possibility that rats could arrive there too.

A captive breeding programme for the teal began in the 1980s. By 1998, numbers had risen from the original wild-caught 10 to 35 birds. In March 1999, 12 captive-bred birds were released on Codfish Island, off the west coast of Stewart Island, New Zealand. Now that Campbell Island is rat-free, birds will be reintroduced from Codfish Island. The first releases will take place in 2004.

Campbell Island was believed to hold the world's densest population of Brown Rats – around 200,000 on a land area of 11,300ha. The New Zealand Government's 2.6 million NZ dollar ($1.5m US) eradication programme was launched in 2001 by Conservation Minister Sandra Lee. 120 tonnes of poisoned bait were dropped from planes and helicopters.

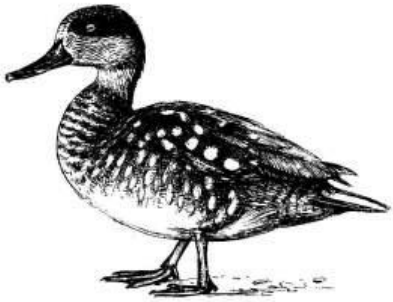
The rats ate eggs and chicks, destroyed nests, and competed with native species for food. Invasive species like rats have been partly or wholly responsible for the majority of bird extinctions since 1800, and 25% of all globally threatened species are at risk from introduced predators including cats, rats and mongooses.

**BirdLife International website**
*www.birdlife.net*

## JOSÉ ANTONIO VALVERDE, "EL PADRE DE DOÑANA"

On 13 April 2003, Professor José Antonio Valverde died at the age of 77. Although he

was not so well known outside Spain, his importance in the recent history of conservation activities and biological research within Spain can not be overstated. His best known legacy is Doñana National Park. It was his energetic lobbying from within Franco´s Spain that gained national and international support for the initial protection of 7,000ha as Doñana Biological Reserve in 1963, at a time when development of the area seemed a more likely outcome. The protected area, since extended to cover 105,000ha, is one of Europe's most important wetlands where January counts of waterbirds can exceed a million individuals. JAV was also the founder of the Doñana Biological Station (in 1964), a research centre of the Spanish Council for Science which has since become one of Spain's best centres for research in ecology and conservation biology (and is where I work). In recent years he founded the Museum of the Marine World just outside Doñana in Matalascañas.



JAV has left us a complete description of what Doñana was like, before development activities from 1928 onwards transformed almost all the marshes lying outside the current national park boundaries. Many factors operating since 1960 have had a negative impact on biodiversity within the national park (e.g. the introduction of exotic crayfish and use of water from the underlying aquifer to irrigate strawberries and rice). His paper about Marbled Teal (Valverde 1963) has had a particular influence on me, as it was the only scientific article in existence about the ecology of this species before I arrived in Doñana in 1993. It gives a fascinating insight into a very different time in the first half of the 20th century, when the Marbled Teal was the most abundant breeding duck in Doñana, breeding in a wide range of habitats and even nesting in reed huts made by people living in the marshes. JAV published papers on a huge range of topics and wrote important works about the conservation status and ecology of almost every vertebrate species in Doñana. His life is a fantastic example of just how very much one person can contribute to conservation.

**REFERENCES**

Valverde, J.A. 1963. Datos sobre cerceta pardilla *(Anas angustirostris)* en las marismas. Ardeola 9:121-132.

**Andy Green**
*andy@ebd.csic.es*

## INTERNATIONAL ACTION PLAN FOR THE FERRUGINOUS DUCK

In July 2003, James Robinson of the Wildfowl & Wetlands Trust (WWT) completed an International Single Species Action Plan for the Ferruginous Duck. The Ferruginous Duck is a little studied, partial migrant, widely distributed in Europe, Asia and Africa. The species is regularly recorded in 76 countries and in many others as a vagrant. Simply adding the national breeding population estimates for the 32 countries with data (numbers were unknown in 9 countries) resulted in an estimated global breeding population of 17,800-27,600 pairs. Assuming winter numbers = breeding pairs x 3, this would equate to a wintering population of 53,400-82,800. Such calculations are fraught with difficulty, but taking into account recent winter counts of 50,000 birds in Pakistan, 30,000 in Mongolia, 21,000 in Turkmenistan, and 14,000 in Mali, it seems that the global population is somewhat higher than the previous estimate of 50,000 birds. A minimum of 70,000 birds seems likely.

The Ferruginous Duck breeds in at least 41 countries worldwide. Of these 41 countries, no estimate of population trend was available for 16 (39%). Of the remaining 26 countries, most (18 or 69%) had decreasing numbers of breeding Ferruginous Ducks over the last seven year period and none had increasing numbers. Eight countries (31%) experienced declines of at least 50%, and eight (31%) declines of 20-49%. In seven countries (27%) breeding numbers were stable and in three (12%) numbers fluctuated with changes of at least 20%, but no clear trend since 1995. Trends in wintering numbers are unclear. Of 73 countries thought to hold wintering Ferruginous Ducks, no estimate of population trend was available for 56 (77%) countries. Of the 17 countries for which data were available, 11 countries (65%) had fluctuating numbers. Of the six remaining countries, two experienced declines of at least 50%, three declines of 20-49% and one an increase of 20-49%.

Despite the fact that the Ferruginous Duck has a widespread distribution and a current population estimate somewhat higher than previously thought, the species has undergone a large, long-term decline globally. With the exception of a small number of large autumn and winter counts in south-east Asia, national populations are mostly in decline. For example, in the Ukraine, the breeding population had declined from 70,000 to only 1,000 pairs.

The Ferruginous Duck is listed as Near Threatened on the IUCN Red List of Threatened Animals (IUCN 2002). The species nearly qualifies for listing under criteria A1c and A2c (decline in area of occupancy, extent of occurrence, and/or quality of habitat). It is also listed on Annex I of the European Union Directive on the Conservation of Wild Birds (79/409/EEC) (Birds Directive), on Appendix III of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), and on Appendix I of the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention). The principal known threats to the Ferruginous Duck are habitat loss, habitat degradation, and hunting. Others include introduction of non-native species (particularly Grass Carp *Ctenopharyngodon idella*), drowning in fishing nets, lead poisoning, disturbance, and drought. Of the 185 Important Bird Areas identified by BirdLife International for Ferruginous Duck, less than 9% of these are known to be protected fully and only 16% have management plans prepared.

The International Single Species Action Plan provides a framework for the conservation for the Ferruginous Duck and is based on the new format for African-Eurasian Migratory Waterbird Agreement International Single Species Action Plan prepared by BirdLife International. Successful implementation of the plan will require effective international co-ordination of organisation and action. The broad aim of the Action Plan will be to remove the Ferruginous Duck from the IUCN Red List of Threatened Animals. In the short-term, the aim of the plan is to maintain the current population and range of the species throughout its range, and in the medium to long-term to promote increase in population size and range. The plan has been developed using internationally agreed standards for identifying actions and has been prepared specifically to facilitate the monitoring and evaluation of subsequent implementation, linking threats, actions and measurable objectives.

The plan will need implementation in 77 countries. The 56 activities identified in the Action Plan focus on the protection of the species and its habitats, appropriate management of key sites, habitat restoration, re-introduction, reducing mortality and intraspecific competition, developing our understanding of the species and its conservation through research and monitoring, and the production of educational materials. Each country within the range of the species should be committed to implement the plan and to develop National Action Plans to help facilitate this.

**REFERENCES**

IUCN. 2002. 2002 IUCN Red List of Threatened Species. Downloaded from *www.redlist.org*.

# INTERNATIONAL FERRUGINOUS DUCK WORKSHOP PROCEEDINGS

**James A. Robinson & Baz Hughes**
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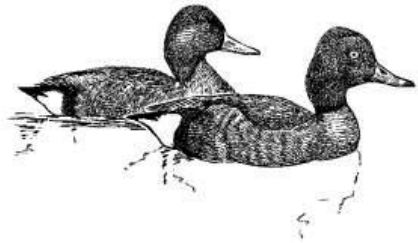
The four most important international treaties in Europe dealing with species conservation (European Union Birds' Directive, Bern Convention, Bonn Convention, and African-Eurasian Migratory Waterbird Agreement (AEWA)) all list the Ferruginous Duck among their priority species. Despite their different wording and provisions, all four treaties call for the legal protection of the species; the ban or the strict regulation of hunting; the prohibition of trade of the birds, eggs, or identifiable parts; and the protection of important sites and habitat. They all promote international co-operation among national governments that are party to the treaties.

In 1999, a pan-European Species Action Plan for the Ferruginous Duck was developed by BirdLife International (compiled by WWT), but it is clear that an action plan covering only part of the range, although helpful in addressing specific threats, will never be completely successful. In order to promote co-operation and action throughout the whole range of the species, the Bonn Convention and AEWA asked BirdLife International to develop a Global Action Plan (see previous news item). The first step was the collection and verification of contemporary information on population size, trend, threats and conservation measures in the 76 countries in which Ferruginous Duck occur. To facilitate this, BirdLife International and the Bulgarian Society for the Protection of Birds, in cooperation with the Threatened Waterfowl Specialist Group, organised an international workshop in Sofia, Bulgaria, in October 2002 with the financial support of the Bonn Convention and AEWA. A total of 30 experts from 21 countries attended from throughout the Ferruginous Duck's range - from Hungary and Poland to Russia, Turkey and Iran.

On the first day of the meeting, experts presented papers on the status, distribution, biology and conservation of the Ferruginous Duck. The second day then comprised interactive sessions to brainstorm the threats faced by Ferruginous Ducks and the conservation actions needed to address them. The proceedings from the meeting included 25 papers either presented to the meeting or from invited experts who could not attend.

The meeting concluded that the Ferruginous Duck, despite having a widespread distribution, was still in grave danger. With the exception of a small number of large autumn and winter counts in south-east Asia, national populations are mostly in decline. Long-term droughts in Central Asia and Africa, no doubt recently exacerbated by global climate change, have caused many important breeding, staging and wintering areas to dry out. The long-term effect of this drought on the Ferruginous Duck is currently unknown, but potentially catastrophic. In many countries, Ferruginous Ducks now rely on artificial habitats, such as fish ponds and dams, for their survival. These factors, the species' widespread distribution, and detailed ecological research in Eastern Europe and Central Asia, suggest that the species may be one of the best indicator species of wetland conditions across Europe, Africa and Asia.



The BirdLife International Ferruginous Duck Conservation Team, established at the meeting, will strive to monitor future population trends and to encourage conservation action to increase Ferruginous Duck numbers worldwide. Further

information on the team and its activities can be found at *http://www.bspb.org/nyroca*.

The proceedings from the meeting have been published as a joint publication of BirdLife International, the Bulgarian Society for the Protection of Birds and the Threatened Waterfowl Specialist Group (BSPB Conservation Series No. 6). PDF versions of the papers from the proceedings can be downloaded from *http://www.bspb.org/nyroca*. For further information, contact Nikolai Petkov, coordinator of the BirdLife Ferruginous Duck Conservation Team.

**Nikolai Petkov, Baz Hughes & Umberto Gallo-Orsi**
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## MARBLED TEAL DIET IN SOUTHERN ALICANTE, EASTERN SPAIN

This news item is a summary of a paper currently in press in Revue d'Ecologie, Terre et Vie.

**SUMMARY**
We present a study of the diet of the globally threatened Marbled Teal in the southern Alicante wetlands, the most important site for the European population. We analysed the gut contents of 64 fully-grown teal collected between 16 June and 24 November from 1992 to 2000, and 31 ducklings (29 of the newly hatched age class I a) collected between 18 May and 16 July from 1994 to 1998. The ducklings died following rescue from a concrete irrigation channel, and all but four fully-grown teal died in various mortalities. We also analysed 20 faecal samples collected from fully-grown teal in July-August in 1999 and 2000, plus faecal samples collected from five broods after their rescue from the channel. Seeds (72% by aggregate % of gullet volume), supplemented by invertebrates (21%) dominated gut samples from fully-grown teal. The most important food item was *Scirpus litoralis* seeds (43% aggregate %) consumed mainly when floating on the water surface. The importance of invertebrates was probably underestimated owing to the poor quality of gut samples. Chironomid larvae and pupae, Corixidae and their eggs, ants, ostracods and amphipods were the most abundant invertebrates by volume. Green plant material (probably *Potamogeton pectinatus*) was abundant in July faeces. There were no clear seasonal trends in diet, perhaps because of the poor quality of most gut samples and variation between years in the seasonal patterns of abundance of different seeds and invertebrates. Ducklings fed mainly on invertebrates, especially chironomid adults and pupae, Coleoptera, Corixidae and ants. They consumed more green plant matter than seeds.

**CONCLUSION**
The globally threatened Marbled Teal is less dependent on invertebrates and more dependent on seeds than other ducks.

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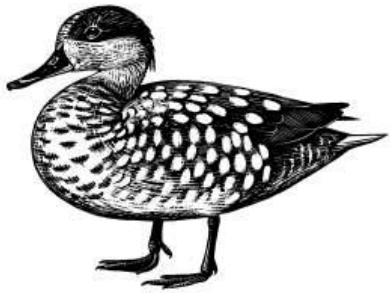

## SPATIAL AND TEMPORAL VARIATION IN MARBLED TEAL DIET IN THE WESTERN MEDITERRANEAN

This news item is a summary of a paper currently in press in Bird Study.

**AIMS**
To assess seasonal variation in Marbled Teal diet at two of the most important

wetlands for the West Mediterranean population.

**METHODS**
Faecal samples from El Hotba, Morocco (19 in October, 28 in May) and Veta la Palma, Doñana (19 in August, five from July broods) were analysed. Gut contents of six birds from Veta la Palma (September-October) were analysed.

**RESULTS**
At El Hotba, small seeds (especially *Ruppia*) and green plant material (especially charophytes) were the dominant faecal components in May and October. The proportion of invertebrates did not change, but more Corixidae and less Chironomidae were consumed in May. At Veta la Palma, *Ruppia* seeds were dominant in August, but Ephydridae, Chironomidae, Coleoptera and other insects were dominant in faeces from July broods. Significantly fewer Coleoptera but more Foraminifera were recorded in August. The overall proportion of invertebrates at El Hotba in May and October was higher than at Veta la Palma in August, but lower than in July broods. Corixidae were dominant in May, Ephydridae in July broods, unidentified insects, Ostracoda and Foraminifera in August and Coleoptera in October. Gut contents from Veta la Palma confirmed the dominance of *Ruppia* seeds in the post-breeding diet.

**CONCLUSION**
The Marbled Teal differs in its ecology from the better-known north-temperate ducks. With the exception of ducklings, they are less dependent on invertebrates and rely more on small seeds than north-temperate ducks.

**Andy Green & Marta I. Sánchez**
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## RED-BREASTED GOOSE MONITORING IN NORTH-EAST BULGARIA

The Red-breasted Goose is a globally threatened species of "Vulnerable" status (IUCN 2002). The last evaluation indicated a global population of 88,000 birds. However, in recent years, due to extremes of weather on the wintering grounds and poor breeding conditions on the tundra, the species' global population has suffered a noticeable reduction within a very short period of time. Thus the species will probably qualify as "Endangered" in the 2004 IUCN Red List according to criterion A1a – population reduction of ≥70% in 10 years or three generations (under consultation).

Bulgaria is the stronghold of the Red-breasted Goose in winter. Over 70% of the global population has been observed in the country, particularly in the remote north-eastern parts along the Black Sea coast. The peak count of Red-breasted Goose in Bulgaria during the 1990s was 67,000 birds, including 62,650 birds in the region of Shabla and Durankulak Lakes (north-east Bulgaria).

The Bulgarian Society for the Protection of Birds / BirdLife Bulgaria (BSPB) has been monitoring Red-breasted Geese in Bulgaria since the late 1980s. Subsequently, more intensive monitoring has taken place, with fortnightly counts from November to March. BSPB has established good cooperation with colleagues from the Romanian Ornithological Society (ROS) and the Danube Delta Biosphere Reserve Administration. This has facilitated coordinated counts of wintering geese throughout the Dobrudja plateau transboundary region in the mid-1990s which allowed the first ever evaluation of the size of the population. Later on fruitful cooperation was established with ornithologists from the Odessa region of Ukraine.

Between 1995 and 2000, the Bulgarian-Swiss Biodiversity Conservation Programme supported Red-breasted Goose monitoring in the areas of Shabla and Durankulak Lakes and Burgas wetlands. Subsequently BSPB has continued to raise funding to continue the monitoring programme due to the high priority it is

afforded by the organization. The Red-breasted Goose monitoring programme at Shabla and Durankulak Lakes is one of the longest-running on the species in recent decades.

Regular winter monitoring is a crucial source of data on population size and trends. In addition, winter monitoring and an assessment of the utilisation of crop fields by the species will enhance a land purchase programme already being conducted in the area which seeks to secure safe feeding areas for the geese.

A large number of geese winter at Shabla and Durankulak Lakes. Besides Red-breasted Geese, over 200,000 White-fronted Geese also regularly spend the winter here. This attracts a lot of hunters, both local and foreign. BSPB experience in the area has proved that it is necessary to provide adequate control and monitoring of hunting pressure in order to reduce disturbance and accidental or illegal killing of the species, and to enforce hunting and conservation legislation. BSPB has already established good cooperation with the Regional Inspectorate of Environment and Waters, the Regional Forestry Service, the wardens of both lakes and the local police office. This has resulted in positive action against illegal hunting and violation of regulations.

Red-breasted Goose monitoring will continue this winter at Shabla and Durankulak Lakes thanks to funding from the Wildfowl & Wetlands Trust. The monitoring programme will aim to:

1. Gather data on numbers of the Red-breasted Goose at its main wintering grounds in South Dobrudja, north-east Bulgaria (Shabla and Durankulak Lakes);
2. Identify current population size through coordinated counts with colleagues from Romania, Ukraine and another BSPB project at Burgas Lakes (south Bulgarian Black Sea coast);
3. Further the objectives of the International Action Plan and National Species Action Plan through reducing illegal shooting of birds and controlling hunting pressure in cooperation with the Regional Inspectorate of Environment and Waters, the Regional Forestry Service and the local police office;
4. Identify significant foraging areas for the Red-breasted Goose in the area.

**REFERENCES**

IUCN. 2002. 2002 IUCN Red List of Threatened Species. Downloaded from *www.redlist.org*.

**Sergey Dereliev**
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## RUDDY DUCK CONTROL IN THE UK

On Monday 3 March 2003, a written statement was made to the UK House of Commons announcing Environment Minister Elliot Morley's decision that further control measures for Ruddy Duck will begin in spring 2003. The statement confirmed that the UK Government agrees in principle that eradication of the Ruddy Duck in United Kingdom is the preferred outcome. However, the Government also concluded that: a) further research into control techniques is still required to determine more efficient techniques of control, and further explore the use of alternative control measures, such as egg pricking; b) the protection provided by domestic legislation to protect the Ruddy Duck should be removed; and c) that the UK cannot act alone in removing the threat posed by the Ruddy Duck so will continue to work with other European countries to ensure that all appropriate action is taken to sustain the White-headed Duck.

**Baz Hughes**
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## UK RUDDY DUCK PROTECTED STATUS REMOVED

On 23 June 2003, the UK Department for the Environment, Food and Rural Affairs issued a general licence for the control of Ruddy Ducks in England under Section 16 (1) (cb), (5) and (5A) of the Wildlife and Countryside Act 1981. The licence allows landowners and other licensed individuals to control Ruddy Ducks, their nests and eggs.

**Baz Hughes**
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## CONSERVATION OF SWAN GOOSE AND BAIKAL TEAL

The Swan Goose and Baikal Teal are two globally threatened species from the East Asian Flyway. In the *Action Plan for the Conservation of Anatidae in the East Asian Flyway: 2001-2005*, action plans are to be developed for the Swan Goose and Baikal Teal. In August 2002, a meeting was held in Beijing, China, where experts and government officers gathered from the species' range states - Russia, Mongolia, China, South Korea, and Japan. They discussed and agreed the establishment of Task Forces for the two species with membership from each country. Websites for the two Task Forces will be established at *http://www.jawgp.org/anet/anscy.htm* (Swan Goose) and *http://www.jawgp.org /anet/anafo.htm* (Baikal Teal).

The Swan Goose Task Force will be coordinated by Dr. Nikolay D. Poyarkov, the Baikal Teal Task Force by Dr. Hansoo Lee. Task Force membership is listed in Table 1.

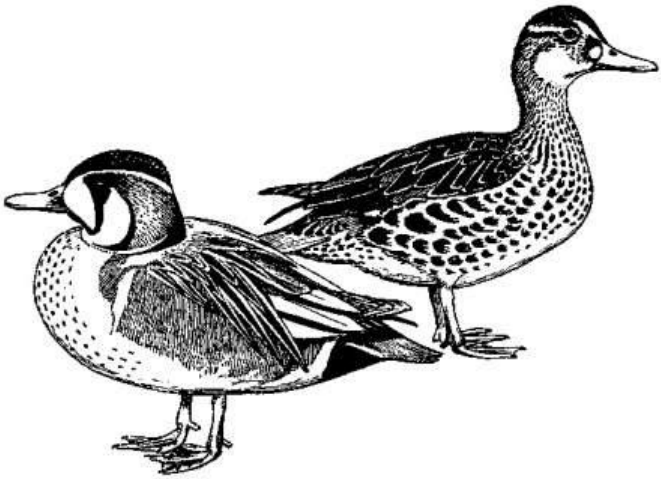
The Baikal Teal Task Force has already produced an awareness sticker in four languages: Russian, Korean, Chinese and Japanese. An English edition is available on the Task Force website. Task Force members are the contacts for the stickers in their own countries (see Table 1). The sticker for Swan Goose has currently only been produced in Russian, but will be produced in other languages in the future.

Both Task Forces will meet during the next (4th) meeting of Anatidae Working Group (AWG) of Asia Pacific Migratory Waterbird Conservation Committee, at the Asian Anatidae Symposium to be held on 31 October 2003 in Seosan City, Cheonsu Bay, Republic of Korea.

**Table 1. Swan Goose and Baikal Teal Task Force membership (as of May 2003).**

| **Swan Goose** | |
|---|---|
| Russia – Amur region | Dr. Nikolay D. Poyarkov (coordinator), Lomonosov Moscow State University, Dept. Vertebrate Zoology, Moscow 119899, Russia. Tel: +(7) 095 939 2757. E-mail: |

| | |
|---|---|
| | *poyarkov@soil.msu.ru* |
| Russia – Transbaikalia region | Mr. Oleg Goroshko, Daursky Zapovednik |
| Mongolia | Mr. S. Gombobaatar, National University of Mongolia |
| China | Dr. Dongping Liu, National Bird Banding Centre |
| Republic of Korea | Dr. Kisup Lee, Ecotech Institute of Environmental Ecology |
| Japan | Mr. Masayuki Kurechi, Japanese Association for Wild Geese Protection |
| | |
| **Baikal Teal** | |
| Russia – breeding area | Mr. Sergei Volkov, Institute of Ecology and Evolution |
| Russia - stopover area | Dr. Nikolay D. Poyarkov, Lomonosov Moscow State University |
| Mongolia | Mr. S. Gombobaatar, National University of Mongolia |
| China | Dr. Dongping Liu, National Bird Banding Centre |
| Republic of Korea | Dr. Hansoo Lee (coordinator), Ecotech Institute of Environmental Ecology, 1004 New Hanjin Officetel, 535-5 Bongmyoung-dong, Yusung-gu, Daejeon, 305-301 Korea. Tel: +(82) 42 825 6477. Fax: +(82) 42 825 6478. E-mail: *hslee@ecotech21c.co.kr* |
| Republic of Korea | Dr. Jin-Young Park, National Institute of Environmental Research |
| Japan | Mr. Hironobu Yamamoto, Wild Bird Society of Japan |



The symposium will be organised by the Seosan City Government and the Korean Ministry of the Environment. It will invite reports on conservation activities at key Anatidae sites in the country and in the East Asian Flyway, and discuss future conservation needs.

Prior to the symposium, on 28-30 October, members of AWG and the two Task Forces will gather to exchange information and discuss further efforts for the conservation of these threatened species and other Anatidae species under the Action Plan. A three-day field trip will be organised after the Symposium. For more information on the symposium contact Dr. Hansoo Lee.

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## GLOBAL FLYWAYS CONFERENCE, 2004

The Global Flyways Conference 2004 - Waterbirds Around the World will be held from 3-8 April 2004 in Edinburgh, UK. It will be jointly hosted by the Governments of the United Kingdom and The Netherlands and organised by Wetlands International. Support from the Convention on Migratory Species, The Ramsar Convention on Wetlands, BirdLife International, US Fish and Wildlife Service, North American Waterbird Conservation Plan, CIC, FACE, Waterbird Society, CAFF, Pacific Seabird Group and many other national and international organisations will ensure broad participation and support.

Waterbirds Around the World will focus on all major themes and developments related to the global conservation of waterbird flyways during their annual cycle: breeding areas, stop-over sites and wintering areas, harvest of waterbirds, site networks, flyway monitoring, flyway management plans, climate change and flyways, nomadic migration and many more. It will address achievements of the last 40 years and formulate gaps and needs for initiatives to stimulate future conservation of the world's flyways and the species and habitats involved.

For more information visit the Wetlands International website at: *http://www.wetlands.org/gfc/default.htm*

## WATERBIRD POPULATION ESTIMATES - THIRD EDITION

The new, third edition of Waterbird Population Estimates (WPE3) was launched at the 8th Ramsar Conference in Valencia, Spain, in November 2002. Two of the most important questions you need to be able to answer if you want to conserve a population of a species are: how many are there? and where are they? WPE3 provides this information for 33 families of waterbirds. The publication aims to:

- identify Wetlands of International Importance for waterbirds.
- support the Ramsar, Bonn & Biodiversity Conventions, EU Birds Directive, and other policy frameworks at international and national level.
- identify priorities for waterbird conservation and research.
- identify gaps in knowledge.

This edition:

- identifies 2,271 biogeographical populations of 868 species.
- provides estimates of the numerical abundance of 76% of these populations.
- estimates population trends for 50% of these populations.
- sets 1% levels for identification of wetlands of international importance under the Ramsar Convention on Wetlands.

A major improvement on the first and second editions (1994 and 1997) is the inclusion of distribution maps generously provided by Lynx Edicions, publisher of *Handbook of the Birds of the World*. Inclusion of these maps at species level, and of more detailed range descriptions at population level, make it easier than ever

for users to identify which populations occur within their country, region or site. The usefulness of the publication is further enhanced by the inclusion for the first time of English names for species, and by a Notes column providing (among other things) information on the derivation of the estimates.

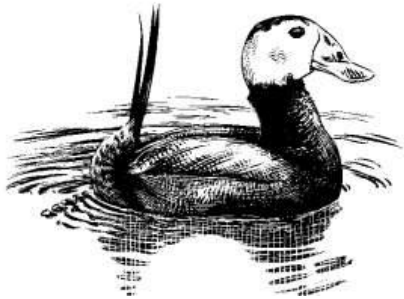
The publication is available to download from Wetlands International's website: *http://www.wetlands.org/*. Or it can be ordered from the supplier, NHBS, price GBP25.00) at: *http://www.nhbs.com/xbscripts/bkfsrch?search=103650*

**Simon Delany**
*simon.delany@wetlands.org*

## WHITE-HEADED DUCK IN CENTRAL ASIA

The White-headed Duck is the only stifftail (Oxyurini) indigenous to the Palearctic. It is restricted to a small area of Central Eurasia and North Africa and is currently recognised by IUCN as globally "Endangered". The global population has decreased from over 100,000 individuals in the early 20th century to 8,000-13,000 individuals in 2002.

The publication "Status Overview and Recommendations for Conservation of the White-Headed Duck *Oxyura leucocephala* in Central Asia" presents the current status of the White-headed Duck in the 12 countries of the Central Asian region, namely Afghanistan, China, India, Iran, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, Russia (Asian part only), Tajikistan, Turkmenistan and Uzbekistan.



The principal threats to the species and its wetland habitats have been identified and priority actions have been recommended. It is evident that the main focus of action should be to conserve the wetlands on which this and many other waterbird species depend. The main recommendations include:

- Review of national policy and legislation to ensure adequate legal protection for the White-headed Duck and its enforcement.
- Sustainable management of water resources to ensure adequate allocation of water.
- Site conservation measures, such as, establishment of an international network of sites of importance for migratory waterbirds.
- Development of a flyway-wide project to build and strengthen links between wetland managers and organisations.
- Development of a comprehensive population monitoring programme covering the wintering, migratory and breeding seasons.
- Research to define the migration routes and population boundaries of the White-headed Duck.

This report in PDF format can be downloaded at *http://www.wetlands.org/pubs&/WHD_gs15_index.htm*

**David Li & Taej Mundkur, Asian Waterbird Census Newsletter**
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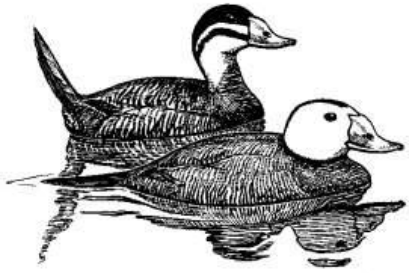
## WHITE-HEADED DUCKS IN EASTERN TURKEY IN LATE SUMMER 2001

In early September 2001, we journeyed through Eastern Turkey (in Vilayet in the provinces of Ardahan, Kars, Agri and Bitlis). On 7 September 2001, we counted 225 White-headed Ducks (122 males and 103 females) on Sodali Gölü, (Bitlis Province (38°77'N, 42°83'E), altitude 1,650m). Other waterbirds at the lake included about 2,000 Coot. This number of White-headed Duck represents 38-56% of the species' breeding population in Turkey (Heath *et al*. 2000), or 2.3-5.5% of the Eastern Mediterranean population (Wetlands International 2002).



Between 3 and 8 September 2001, we visited seven other wetlands which have been declared as Important Bird Areas (Aktas Gölü, Ardahan Province, 41°20'N, 43°15'E; Cildir Gölü, Ardahan Province, 41°00'N, 43°20'E; Kuyucuk Gölü, Kars Province, 40°45'N, 43°27'E; Saz Gölü, Agri Province, 39°75'N, 44°10'E; Balik Gölü, Agri Province, 39°78'N, 43°55'E; the Bendimahi Delta in Van Gölü, Van Province, 38°93'N, 43°65'E; and the lakes of the Nemrut Dagi crater, Bitlis Province, 38°37'N, 42°14'E). However, we recorded only one pair of White-headed Ducks - on 3-4 September 2001 at Kuyucuk Gölü (40°45'N, 43°27'E, altitude 1,627m). Other waterbirds at the same lake included a remarkable concentration of 1,600 Ruddy Shelducks *Tadorna ferruginea* representing 10-20% of this species breeding population in Turkey (Heath *et al*. 2000), or 8% of Eastern Mediterranean population (Wetlands International 2002).

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## ASIAN WATERBIRD CENSUS

The Asian Waterbird Census (AWC) (also known as Asian Waterfowl Census) is a regional programme to promote public participation to monitor the distribution and populations of waterbirds and status of wetlands. The AWC covers the region of Asia, from Pakistan eastwards to Japan, South-east Asia and Australasia. The AWC runs parallel to other international censuses of waterbirds in Africa, Europe, West Asia and the Neotropics under the umbrella of the International Waterbird Census (IWC). To date, more than 5,700 sites from 24 countries have been counted at least once.

Information from the AWC contributes to the identification and monitoring of wetlands of international and national importance. It also assists decision-makers in designating wetlands to the Convention on Wetlands (Ramsar, Iran 1971), protecting threatened species and assessing values of wetlands. The data feeds into an international programme to maintain an overview of the population size, status and trends of waterbirds.

The AWC has been an ongoing effort since 1987. It is conducted by a large network of volunteers working through national coordinators. Coordinated by Wetlands International, the AWC has been organized

annually during the second and third weeks of January.

The 1997-2001 AWC report will be published by the end of 2003 and an AWC coordinators workshop will be held in Kuala Lumpur, Malaysia, on 9-10 October 2003. The meeting will focus on the future development of the AWC, particularly on how to extend site coverage and improve data quality.

More information on the AWC can be found on the AWC Website (*http://www.wetlands.org/IWC/awc/awcmain.html)*. For the latest information on the AWC, please contact David Li, AWC International Coordinator, Wetlands International, 3A39, Block A, Kelana Centre Point, Jalan SS7/19, 47301 Petaling Jaya, Selangor, Malaysia. Tel: +60-3-7804 6770. Fax: +60-3-7804 6772.

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## WHITE-WINGED DUCKS IN MYANMAR

During the 2003 Asian Waterbird Census in Myanmar, a total of 77 sites were counted with the help of 40 volunteers. Overall, 53,159 waterbirds of 108 species were counted, including 18 White-winged Ducks at the Wetthigan Wildlife Sanctuary.

**Thet Zaw Naing,** Asian Waterbird Census Newsletter
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## FOR SALE: ITALIAN KEY SITE FOR FERRUGINOUS DUCK

Valle San Floriano, one of the few key breeding sites for the Ferruginous Duck in Italy, is currently for sale. The society that owned this small Apulian wetland (300ha of freshwater marshland and part of the Manfredonia Gulf wetlands IBA) has gone bankrupt. It is not known whether there are currently any buyers for the estate (which will cost several million Euros), including 300ha of reclaimed arable land, and a cattle farm. There is a risk that the site will be acquired by people who may manage it in an unsuitable way for the Ferruginous Duck. It is also possible that the adjacent Zapponeta village, currently confined to a narrow belt between the marshland and sea, may take the opportunity to expand.
Valle San Floriano, used in the past for rice growing, used to be run as a private hunting reserve. The few hunters who used to shoot here recorded some of the highest daily bags in Italy (several hundred Pintail *Anas acuta* and Wigeon *A. penelope*) thanks to the nearby protected saltpans, which the ducks visited for freshwater. This, however, happened on only a few days in midwinter, and did not seem to reduce breeding Ferruginous Duck numbers, that do not spend the winter locally.

Some 20 pairs of Ferruginous Duck, representing 30% of the total population of the Italian peninsula, have bred at Valle San Floriano over the last five years. However, in spring 2003 site management ceased after the society went bankrupt. Numbers of Ferruginous Duck declined to only eight adults and new threats arose (turbid waters overgrown by *Phragmites*, pollution of adjacent canals by discharge of refuse and chemicals from a public road, water release from the site for irrigation). Common breeding species were also less common and experienced a lower breeding success than in previous years (e.g. Coot *Fulica atra* 0.15 young/adult in 2003, vs. 1.44 in 2002).

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## THREATENED WATERFOWL ON THE WEB

**TWSG PROFILE ON THE IUCN-SSC WEBSITE**
*http://www.iucn.org/themes/ssc/sgprofiles/twsg.htm*

A profile of the TWSG is now available on the IUCN-SSC website. The profile comprises an overview of the group; short biographies of active members, their background, fields of interest, and current work; and information on the basic ecology, threat status, and conservation efforts for key species. Member profiles have so far been included for Andy Green (Marbled Teal), Luís Silveira (Brazilian Merganser), Nancy Drilling (White-winged Duck), and Nicky Petkov (Ferruginous Duck).

**HUGE BAIKAL TEAL FLOCKS IN SOUTH KOREA**
*http://home.megapass.co.kr/~skua/*

Kim Hun-Tae's amazing pictures of huge wheeling flocks of Baikal Teal in South Korea can be found by clicking on the Baikal Teal link in the Guide to Birds section of this website. A stunning video of the same spectacle can also be downloaded by clicking on the photo of Baikal Teal in flight at *http://myhome.naver.com/chdsoo/bird1.htm*. Although this is a 10Mb download, it is certainly worth the wait!

**NEW ZEALAND BROWN TEAL ONLINE**
*http://www.brownteal.com/*

The New Zealand Brown Teal website, set up by Kevin Evans, provides information about Brown Teal, what is being done to help conserve and manage them, and who is involved.

**ANDY GREEN'S WEBSITE**
*http://www.ebd.csic.es/andy/*

Andy Green's website contains information on his current research activities. These include habitat use of Marbled Teal in the Valencian Autonomous Community; the ecological and evolutionary consequences of waterfowl-mediated dispersal on biodiversity and metapopulation dynamics of aquatic organisms; ecomorphology in the Anatidae and it's effect on the community ecology and dispersal of aquatic plants and invertebrates; a study of genetic introgression between the White-headed Duck and North American Ruddy Duck; the aquatic invertebrates in the Doñana Natural Park and their importance in the diet of waterbirds; and the effects of lead poisoning in Doñana and other wetlands in Andalucía. The site also includes a comprehensive list of Andy's publications, including 27 available for download as pdf files.

If you have your own personal website which provides a useful resource to threatened waterfowl conservationists, please contact *baz.hughes@wwt.org.uk.*

**THREATENED BIRDS OF ASIA WEBSITE**
*http://www.rdb.or.id/*

The second version of the Threatened Birds of Asia website has been launched. The species accounts are now available in HTML format, which means that they are much faster to download. The new site:

- includes all sections of the Threatened Birds of Asia: the BirdLife International Red Data Book, including the references and gazetteer.
- contains "BirdLife Update", new information gathered by the BirdLife International Secretariat and Partners on threatened birds and their conservation.
- allows users to add their recent sightings of threatened birds, and other new data relevant to their conservation.
- includes a summary of the most noteworthy recent news on threatened birds in Asia.

**DUCKS UNLIMITED WEBSITE**
*http://www.ducks.org/conservation/latinamerica.asp*

Ducks Unlimited's Latin America and Caribbean program website has been updated to include additional information on wetland conservation and waterfowl surveys in the region.

**WINTERING WATERFOWL IN BULGARIA**
*http://bspb.novhost.com/site/srednozimno.php?makevarz=ok*

The results of winter waterbird counts in Bulgaria since 1997 are now available online on the BSPB/BirdLife Bulgaria website.

**JAN HARTEMAN'S WATERFOWL OMNIBUS**
*http://www.harteman.nl/omnibus/index.html*

Jan Harteman's Waterfowl Omnibus now includes images of all but four of the world's waterfowl species. The site also includes ten different wallpaper images, including Marbled Teal, White-headed Duck and a collage of threatened waterfowl.

**LAYSAN DUCK WEBSITE**
*http://biology.usgs.gov/pierc/PLReynoldsPage.htm*

Michelle Reynold's website includes information on the population status of the Laysan Duck, the feasibility of translocating Laysan Ducks to other Hawaiian islands (see update on p. 81) and a discussion of the parallels between the conservation of endangered island Anatids in Hawaii and New Zealand.

**THREATENED WATERFOWL IN NEW ZEALAND**
*http://www.doc.govt.nz/Conservation/001~Plants-and-Animals/001~Native-Animals/*

The New Zealand Department of Conservation's website includes background information on conservation efforts for Blue Duck and subantarctic teal (Auckland Island Teal and Campbell Island Teal).

# FEATURES

## TRENDS IN THE BULGARIAN FERRUGINOUS DUCK BREEDING POPULATION, 1997-2002

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### BACKGROUND

Until the mid 1990s there were no hard data on the distribution and numbers of Ferruginous Duck in Bulgaria (see Petkov 1998a, b). Previous population estimates had suggested there were 100-150 breeding pairs in the country (Nankinov 1985; Nankinov *et al*. 1997). In 1996 a national breeding census was initiated, supported by the British Ornithologists' Union and BirdLife International, and carried out by BSPB/BirdLife Bulgaria. This produced a revised population estimate of 150-210 pairs on a total of 35 breeding sites (Petkov 1997, 1998b) (Figure 1).

In the late 1990s, a draft national action plan was developed. This recommends a national breeding census every five years (Petkov 2002). In 2002, a second national breeding census was conducted. Some of the general results are presented here.

### METHODS

The breeding census in 2002 was carried out from 15 May to 10 June. Volunteers from BSPB/BirdLife Bulgaria conducted synchronised counts across the country visiting all breeding sites. As well as observed paired birds, single females and groups of up to 3-4 males were also regarded as one pair each.

### RESULTS

A total of 28 breeding sites were found in 2002 (Figure 2), including five new sites (Petkov 1997, 1998b). Some 185 pairs were counted, resulting in a population estimate of 125-230 pairs. Several breeding sites, which previously held 1-10 breeding pairs, no longer held birds, including the former key site of Belene Island (43˚40'N, 25˚10'E), which was totally dry in 2002. Table 1 lists the former and recent status of Ferruginous Duck at all known breeding sites in Bulgaria.

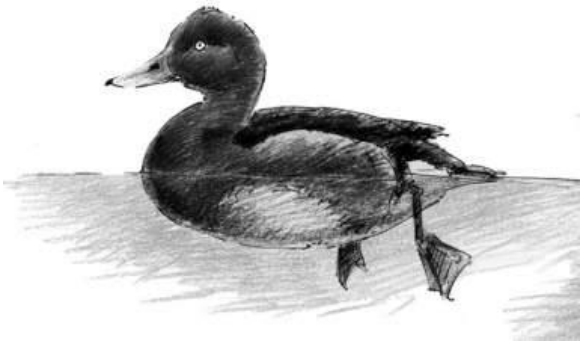

**Figure 1. Breeding distribution of Ferruginous Duck in Bulgaria in 1997.**

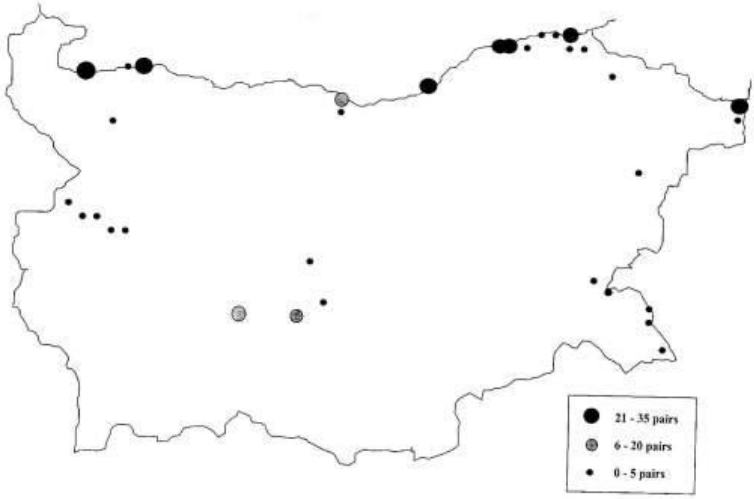


**Figure 2. Breeding distribution of the Ferruginous Duck in Bulgaria in 2002.**

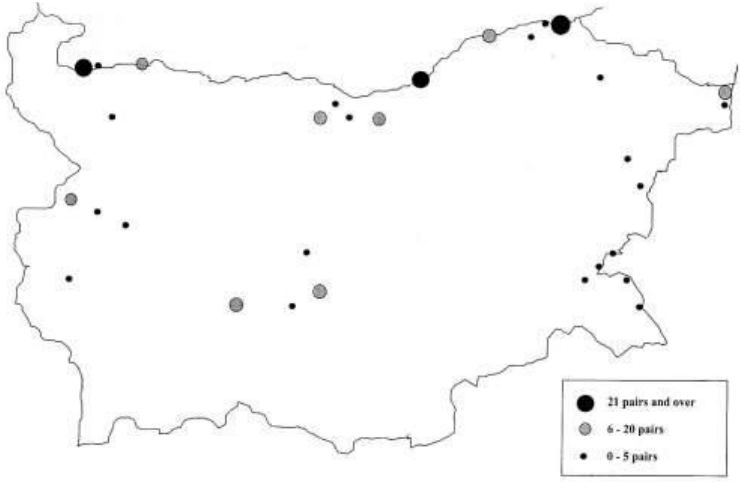

**Table 1. Former and recent status of Ferruginous Duck at breeding sites in Bulgaria.**

| Site Name | Protection | Pre-1980 | 1996-97 | 2002 |
|---|---|---|---|---|
| 1. Dragoman | No | Breeding | 3-5 pairs | 8-10 pairs |
| 2. Aldomirovtsi | Yes | Breeding | 1-2 pairs | 0 (dry) |
| 3. Peturch | No | Breeding | 1-2 pairs | 1-2 pair |
| 4. Volyak | No | No data | 1 pair | 0 |
| 5. Choklyovo | Yes | Breeding | No | 2 pairs |
| 6. Dolni Bogrov | No | Breeding | 1 pair | 0 |
| 7. Kremikovtsi | No | Breeding | 0 | 0 |
| 8. Pazardgik | No | 10 pairs | 5-7 pairs | 8-10 pairs |
| 9. Plovdiv | No | No data | 0-1 pair | 0 |
| 10. Trud | No | No data | 1-3 pairs | 0 |
| 11. Rakovski | No | No data | 2-3 pairs | 6-8 pairs |
| 12. Tatari | No | No data | 1 pair | 0 |
| 13. Mechka | No | Breeding | 30-35 pairs | 20-30 pairs |
| 14. Kalimok | Yes | Breeding | 15-25 pairs | 8-20 pairs |
| 15. Pozharevo | No | Breeding | 1-2 pairs | 0 (dry) |
| 16. Garvan | Yes | Breeding | 5-6 pairs | 4-5 pairs |
| 17. M. Preslavec | Yes | Breeding | 3-4 pairs | 2-3 pairs |
| 18. Srebarna | Yes | Breeding | 15-25 pairs | 35-65 pairs |
| 19. Sitovo | No | No data | 2 pair | 0 |
| 20. Silistra | No | No data | 1 pair | 0 |
| 21. M. Tsenovich | No | No data | 2-3 pairs | 0 |
| 22. Durankulak | Yes | Breeding | 20-27 pairs | 12-15 pairs |
| 23. Shabla | Yes | Breeding | 1-2 pairs | 2-4 pairs |
| 24. Yatata | Yes | No data | 0-1 pair | 0-1 pairs |
| 25. Shabla Tuzla | No | No data | 1-2 pairs | 0 |
| 26. Cherni Vruh | No | No data | 4-5 pairs | 0-2 pairs |
| 27. Poda | Yes | No data | 0-1 pair | 1 pair |
| 28. Alepu | Yes | Breeding | 2 pairs | 0 |
| 29. Belene | Yes | Breeding | 8-10 pairs | 0 (dry) |
| 30. Tsibar Marsh | No | No data | 15-25 pairs | 8-10 pairs |
| 31. Montana Fishpond | No | No data | 1 –2 pairs | 1 pair |
| 32. Momin Brod | No | No data | 3-4 pairs | 2-3 pairs |
| 33. Stomopolu | Yes | Breeding | 1-2 pairs | 0 |
| 34. Devil Marsh | No | No data | 1-2 pairs | 1-2 pairs |
| 35. Veleka | Yes | No data | 1 pair | 0 |
| 36. Chelopechane | No | No data | 1-2 pairs | 1-2 pairs |
| 37. Sokolitsa | No | Breeding | 1-2 pairs | 2-4 pairs |
| 38. Straldga | No | Breeding | 0-1 pair | 0 |
| 39. Hadgi Dimitrovo | No | No data | 0 | 9-10 pairs |
| 40. Kulina Voda | No | No data | 0 | 1-2 pairs |
| 41. Morava | No | No data | 0 | 1-2 pairs |
| 42. Obnova | No | No data | No data | 2-3 pairs |
| 43. Tsenovich | No | No data | 2-3 pairs | 0 |
| 44. Poda Fishpond | No | No data | None | 3-5 pairs |
| 45. Tervel | No | No data | No data | 1-2 pairs |
| 46. Kovatchevo Ricefield | No | No data | No data | 2-3 pairs |

**DISCUSSION**

The census in 2002 suggested a small decrease of *ca.* 10 pairs in the Ferruginous Duck breeding population since 1997. The range had shrunk from 35 breeding sites in 1997 to 31 in 2002, including the five newly

established sites. Although the population had not decreased dramatically, this was mainly due to an increased number of birds at Srebarna Lake (44˚07'N, 27˚04'E) which can now hold up to 30% of the national population (e.g. in 2001). At other key sites numbers are falling. For example, Kalimok Fishpond (44˚00'N, 26˚28'E) and Mechka Fishpond (43˚44'N, 25˚49'E), both situated along the Danube, held half as many pairs in 2002 compared to 1997. The decreases at these fishponds have been caused by their complete or partial abandonment. Though Mechka Fishpond is still operating as an extensive fishpond, some of the basins have been abandoned, and others leased to private owners. Some basins where the Ferruginous Duck used to breed were totally dry in 2002. Such multiple ownership of fishpond basins is a new and dangerous phenomenon for the maintenance of wetland biodiversity because a) the timing of management activities varies between basins, and b) it is easier for individual fish farmers to practice intensive fish-production. Other wetlands have deteriorated over the last few years due to the lack of rainfall resulting in low water levels.

Some new breeding sites have appeared, mainly as previously inhospitable wetlands have been transformed into good breeding sites by the growth of floating and submerged plants. These new sites are mostly micro-reservoirs (up to 80ha in size), but also include fishponds at which extensive management has been introduced. Micro-reservoirs are also often used for fish production – they differ from fishponds only in that they consist of a single basin, have steeper banks and are often deeper (up to 4-5m).

Vegetative succession and hyper-eutrophication have negatively affected the Ferruginous Duck as it abandons heavily overgrown wetlands. Many wetlands in Bulgaria, both natural and artificial, are now facing this problem either due to their dependence on artificial water supplies or due to their reliance on active management (both of which are sometimes lacking). We presume that some new breeding sites have been colonized as a result of migration from nearby wetlands that have been destroyed. For example, in 2002 when the Belene Island marshes were totally dry, small numbers of Ferruginous Duck appeared at nearby micro-reservoirs.

The 2002 survey was the first to find Ferruginous Ducks breeding in ricefields. Though rice production in Bulgaria has decreased over the last decade, some fields are still maintained and two pairs were found at Kovatchevo Ricefield in the Maritsa River valley in southern Bulgaria. In other countries, such as Hungary, Ferruginous Ducks have also been reported breeding in ricefields (Szimuli *pers. comm*.). The 2002 census found no breeding pairs in river mouths. Though Bulgaria does not have large river deltas or estuaries, some of the river mouths along the Black Sea coast offer presumably suitable conditions. However, these do not hold breeding pairs, probably due to significant disturbance from holidaymakers and fishermen. Such disturbance also occurs at natural lakes, e.g. Durankulak and Shabla, and at most micro-reservoirs. The legal and illegal use of fishing nets, resulting in by-catch of diving species, is also a problem at some wetlands, such as Srebarna Lake.

**CONCLUSION**

The second breeding census of the Ferruginous Duck in Bulgaria revealed a small decrease in the Bulgarian Ferruginous Duck breeding population. Significant declines occurred at previously important sites, such as Kalimok and Mechka Fishponds, and the Belene Island marshes, resulting in a concentration of the breeding population on fewer wetlands. Thus in some years up to a third of the breeding population may be concentrated on a single site. Most wetlands continue to deteriorate, and accelerated vegetative succession at many sites endangers the existence of the species. With an absence of active management activities, and reduced rainfall in future, other sites may also be lost. These declines may be exacerbated by disturbance by fishermen and holidaymakers.

To end on a positive note, a project by the state authorities now aims to restore two

key sites for the species – the Kalimok Fishpond and Belene Island marshes. These sites could hold up to 50-60 breeding pairs once restored. Further positive effects may be seen if the Ministry of Environment and Water implements the Bulgarian Ferruginous Duck Action Plan. Additional benefits may also result once recently produced management plans for protected wetlands (e.g. for Srebarna and Durankulak Lakes) are implemented.

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# DISTRIBUCIÓN DEL PATO DE ANTEOJOS *ANAS SPECULARIS* EN LA REGIÓN PATAGÓNICA DE ARGENTINA

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**SUMMARY**
A review of recent observations of Spectacled Duck *Anas specularis* from Argentina is presented, providing up to date information on the current distribution of this species.

**INTRODUCCION**
La distribución conocida para esta especie se limita a la región austral del continente Sudamericano, abarcando en ella a la Región Patagónica de Argentina y de Chile, algunos autores (Olrog 1959, 1963, 1979; Meyer De Schauensee 1982; Clark 1986) lo dan como presente en el centro norte de Argentina y en Buenos Aires. Narosky & Di Giacomo (1993) lo citan como hipotético tomando como referencia las citas de Olrog, aclarando que desconocen en qué datos se basaba Olrog para citarla en dicha provincia.

En su trabajo, Gorgoglione (1997) lo señala para casi toda la Provincia del Neuquen. Mientras que el Navas (1977), solamente limita su distribución al oeste de la Región Patagónica. En Chile, Araya & Millie (1988), es señalado desde Valparaíso hasta Tierra del Fuego.

Las diferencias que se observan en los trabajos arriba citados, al señalar la distribución de este anátido, probablemente se deban a citas no confirmadas. Este hecho más los datos recientes que señalan existencia de poblaciones bajas en su área de distribución sur, lugar en que nidifica, llevan a realizar un mapeo en función de los datos puntuales.

La base de este mapeo son las citas bibliográficas detalladas por Steullet & Deautier (1935-1946), a las que se le agregan las localidades en que la especie fue censada durante los censos de aves acuáticas realizados en el país, años 1992, 1995 y algunos registros de observadores independientes.

En este trabajo, pretendemos actualizar la información de distribución de A*nas specularis* en base a nuevos registros. Se relevó la información disponible y se realizaron encuestas entre ornitólogos y observadores de aves, incluyendo revisión de censos, en busca de datos de *Anas specularis*, a fin de realizar el ajuste descripto.

**RESULTADOS**
Los referidos en Steullet & Deautier (1935-1946), que señalan la siguiente distribución "*El pato de anteojos habita en la región austral de Chile y de la Argentina. En lo que respecta a nuestro territorio, ha sido señalado en Tierra del Fuego y en su región andina de la Patagonia hasta los 35° de latitud aproximadamente."* Las localidades que señalan puntualmente son:

- Estrecho de Magallanes (Tierra del Fuego).
- Río Mitre, Lago Argentino y Río Gallegos en proximidades de Bella Vista (Santa Cruz).
- Río Carreuleufú y alrededores del lago General Paz (Chubut), Huanuluan, desembocadura del Río Ñiriguau (=Ñirihuau), Bariloche (Río Negro).
- Bahía Huemul-lago Nahuel Huapi-, Laguna Mallín Chaucho, Ríos Quilquihue, Agrio, Collon-Cura y Neuquén, Arroyo Pil-Pil al SW., del lago Lacar (Neuquén).

Estas localidades se encuentran en el oeste de la Región Patagónica y se corresponden a las provincias de Tierra del Fuego, Santa Cruz, Chubut, Río Negro (Dpto. Bariloche, 25 de Mayo), Neuquén (Dpto. Los Lagos, Lacar, Collon-Cura).

Contreras *et al*. (1980), señalan que es una especie abundante residente de verano y nidificante, datos que refieren para la orilla Sur del Lago Mascardi y para el curso

superior del Río Manso (Historia Natural Vol. 1 nº 8:41-48).

Las nuevas localidades que se detallan a continuación amplían la distribución conocida, y en muchos casos son primeras citas para muchas localidades y Departamentos Provinciales.

Señalo (ver Tabla 1) los datos aportados por observadores de aves, que facilitaron los registros para este informe. Patricia González, (comunicación personal, 16/12/1999) indica que en censos de chorlos del Departamento 25 de Mayo, Río Negro no lo observaron (Maquinchao y alrededores, Laguna Ñe Luan, El Cain, y Carri-laufquen).

Finalmente, los datos que se desprenden del trabajo realizado por el Departamento de Investigación Técnica de Parques Nacionales, señalan que la presencia establecida para la especie en los censos de aves realizados en los Parques Nacionales Nahuel Huapi, Lanín y Laguna Blanca, es infrecuente y raro. Los datos señalan que frecuentaría ambientes entre 700 y 1200 metros de altura sobre el nivel del mar.

**CONCLUSIONES**

Los datos referidos (ver Tabla 1), tomados sobre un total de 66 registros, indican que el 23% de los registros corresponden a individuos solos, 45% a dos, entre 3 y 5 ejemplares el 18%, el 9% de 6 a 11 o más, y el 5% restante responde a tres registros en que no se tomó el número de ejemplares observados.

Estos, parecen indicar que es mas frecuente encontrarlos en parejas o individuos aislados que en grupos o bandadas numerosas. El registro de 28 individuos corresponde a la agregación de ejemplares que integraban parejas, más o menos reunidas en el lago Pulmarí, Neuquen, Argentina.

Para obtener otro tipo de información es necesario realizar un trabajo más exhaustivo y sistemático que permita revisar la extensa región patagónica, para establecer la población existente en dicha región. Los datos aportados son una muestra de cómo es percibida la especie en los ambientes frecuentados por algunos observadores de campo, que realizan salidas hacia los ambientes acuáticos localizados en un vasto territorio.

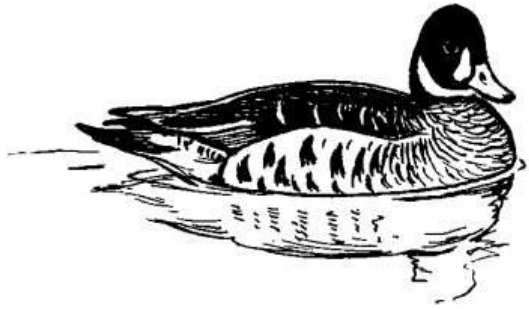

**Tabla 1. Observaciones del Pato de Anteojos *Anas specularis* en Argentina.**

| Fecha | No. | Lugar | Departamento | Provincia | Ambiente | Observer |
|---|---|---|---|---|---|---|
| 00.10.77 | 1 | Isla Victoria 40º51'S, 71º31'W | Los Lagos | Neuquén | Lago | FV |
| 10.02.78 | 2 | Des. R. Ñirihuau 41º04'S, 71º10'W | Bariloche | Río Negro | Lago | MAG |
| 07.02.79 | 8 | Des. R. Ñirihuau | Bariloche | Río Negro | Lago | MAG |
| 01.06.81 | 1 | Isla Victoria | Los Lagos | Neuquén | Lago | PA |
| 01.07.81 | 1 | Isla Victoria | Los Lagos | Neuquén | Lago | PA |
| 14.11.81 | 1 | Des. R. Ñirihuau | Bariloche | Río Negro | Lago | MAG |
| 01.10.83 | 2 | Des. R. Ñirihuau | Bariloche | Río Negro | Lago | MAG |
| 05.11.83 | 1 | Lag. Los Juncos 41º03'S, 71º01W | Pilcaniyeu | Río Negro | Costa, veg. | MAG |
| 31.12.83 | 2 | Des. R. Ñirihuau | Bariloche | Río Negro | Lago | MAG |
| 21.07.84 | 4 | Des. R. Ñirihuau | Bariloche | Río Negro | Lago | MAG |
| 08.02.86 | 3 | AªCuyín Manzano 40º22'S, 71º08'W | Los Lagos | Neuquén | Arroyo, costa | MAG |
| 03.04.88 | 2 | Bariloche, N. Huapi 41º08'S, 71º18'W | Bariloche | Río Negro | Lago | MAG |
| 07.04.88 | 4 | Bariloche, N. Huapi | Bariloche | Río Negro | Lago | MAG |
| 25.06.88 | 2 | Bariloche, N. Huapi | Bariloche | Río Negro | Lago | MAG |
| 22.10.89 | 2 | Lago Morenito 41º03'S, 71º32'W | Bariloche | Río Negro | Costa, veg. | MAG |
| 05.03.91 | 2 | Villa Chocón 39º14'S,68º44'W | Confluencia | Neuquén | Río | PA |
| 17.03.91 | 4 | Villa Chocón | Confluencia | Neuquén | Río | PA |
| 27.08.92 | 2 | Lago Belgrano | Río Chico | Santa Cruz | Lago | Gpues. P.M |
| 28.08.92 | 2 | A° Laguna Clara | P.N. Perito Moreno | Santa Cruz | Arroyo | Gpues. P.M. |
| 11.09.92 | 1 | Lag. Portada | P.N. Perito Moreno | Santa Cruz | Laguna | Gpues. P.M. |
| 08.02.93 | 2 | Lag. Península | P.N. Perito Moreno | Santa Cruz | Lago | Gpues. P.M. |
| 20.01.93 | 2+4P | Lag. Mogote W | P.N. Perito Moreno | Santa Cruz | Lago | Gpues. P.M. |
| 05.02.93 | 2 | Lag. Norte | P.N. Perito Moreno | Santa Cruz | Laguna | Gpues. P.M. |
| 20.02.93 | 2 | Río Roble | P.N. Perito Moreno | Santa Cruz | Río donde se hace agua | Gpues. P.M |
| 01.01.94 | ¿? | Epu Lauquen 36º49'S, 71º01'W | Minas | Neuquén | Lagunas | L.L. |
| 19.02.94 | 1 | Río Volcán | P.N. Perito Moreno | Santa Cruz | Río | Gpues. P.M. |
| 21.10.95 | 1 | Laguna Rosales 40º07'S, 71º21'W | Lacar | Neuquén | Laguna | PA |
| 24.06.96 | 1 | Pichi. Picún Leufú 39º31'S, 68º18'W | Collon. Curá | Neuquén | Presa | PA |
| 29.01.97 | 2 | Moncol 37º20'S, 70º40'W | Ñorquín | Neuquén | R. Reñileuvú | PA |
| 12.03.97 | 1 | Los Carrizos | Minas | Neuquén | R. Nahueve | PA |

| Fecha | No. | Lugar | Departamento | Provincia | Ambiente | Observer |
|---|---|---|---|---|---|---|
| | | 37º20'S, 71º07'W | | | | |
| 12.03.97 | 6 | Ruta Pcial 57<br>36º53'S, 70º57'W | Minas | Neuquén | R. Reñileuvú | PA |
| 13.03.97 | 5 | Epu Laufquen | Minas | Neuquén | Lagunas | PA |
| 14.03.97 | 2 | Ruta Pcial 45 | Minas | Neuquen | R. Nahueve | PA |
| 09.04.97 | 1 | Pichi. Picún Leufú | Collon. Curá | Neuquén | Charco | PA |
| 17.11.97 | 2 | Sec. Río Trómen<br>39º33'S, 71º26'W | P.N. Lanín | Neuquén | | AR |
| 16.07.98 | 2 | Añelo<br>38º21'S, 68º46'W | Añelo | Neuquén | R. Neuquén | PA |
| 01.09.98 | 2 | R. Malleo | P.N. Lanín | Neuquén | R. Malleo | AR |
| 23.11.98 | 2 | Lag. Moquehue<br>39º14'S, 70º55'W | Aluminé | Neuquén | Lagunita | PA |
| 25.11.98 | 1 | Lag. Ñorquincó | Aluminé | Neuquén | R. Coloco | PA |
| 27.11.98 | 1 | Ea. Pulmarí | Aluminé | Neuquén | R. Pulmarí | PA |
| 08.02.99 | 5 | Lag. Rucachoroi | P.N. Lanín | Neuquén | Lago | PA |
| 05.06.99 | 2 | Lag. Rosales | Lacar | Neuquén | Laguna | GD |
| 16.10.99 | 2 | Lag. Rosales | Lacar | Neuquén | Laguna | GD |
| 18.10.99 | 3 | Curruhué Chico | P.N. Lanín | Neuquén | Lago | PA |
| 20.10.99 | 2 | Des. R. Curruhué | P.N. Lanín | Neuquén | Lagu. Verde | PA |
| 22.10.99 | 2 | Curruhué Chico<br>39º53'S, 71º24'W | P.N. Lanín | Neuquén | Lago | PA |
| 20.11.99 | 2 | Lag. Rosales | Lacar | Neuquén | Laguna | GD |
| 03.12.99 | ¿? | Camping<br>54º36'S, 68º23'W | P.N.T. Fuego | T. del Fuego | ¿? | JMB |
| 00.12.99 | ¿? | Chaltén<br>49º19'S, 72º54'W | Perito Moreno | Santa Cruz | ¿? | JMB |
| 05.12.99 | 2 | Lag. Rosales | Lacar | Neuquén | Laguna | GDF |
| 17.09.00 | 5 | Lag. Azara | P.N. Perito Moreno | Santa Cruz | Laguna, semi escarchada | Gpues. P.M. |
| 26.11.00 | 4 | Ruta 234 | Lacar | Neuquén | Charco | MAG,MLC |
| 23.02.01 | 2 | Lag. Del Pescado | P.N. Perito Moreno | Santa Cruz | Laguna | Gpues. P.M. |
| 24.02.01 | 2 | Lag. Del Pescado | P.N. Perito Moreno | Santa Cruz | Laguna | Gpues. P.M. |
| 21.07.01 | 4 | Lag. Rosales | Lacar | Neuquén | Laguna | GD |
| 06.08.01 | 4 | Lag. Rosales | Lacar | Neuquén | Laguna | GD |
| 16.09.01 | 1 | Los Juncos | Pilcaniyeu | Río Negro | Laguna | MAG |
| 04.10.01 | 28 | Lago Pulmarí | Aluminé | Neuquén | Lago | PA,HM |
| 22.11.01 | 1 | Los Juncos | Pilcaniyeu | Río Negro | Laguna | AT |
| 01.12.01 | 2+4P | L. Burmeister | Río Chico | Santa Cruz | charco | Pers.PNPto. Moreno |
| 25.07.02 | 11 | Lag. Rosales | Lacar | Neuquén | Laguna | GD |
| 10.08.02 | 4 | Lag. Rosales | Lacar | Neuquén | Laguna | GD |
| 19.08.02 | 4 | Lag. Rosales | Lacar | Neuquén | Laguna | GD |
| 14.09.02 | 2 | R. Curruhur<br>71°01'S, 39°09'W | | Neuquén | Río | GD |
| 29.09.02 | 2 | Lag. Mascardi | Bariloche | Río Negro | Lago | RO |
| 27.11.02 | 2 | Ea. Chacayal<br>40º20'S, 70º40W | Lacar | Neuquén | Río | GD,FF |

| Fecha | No. | Lugar | Departamento | Provincia | Ambiente | Observer |
|---|---|---|---|---|---|---|
| 30.12.02 | 2+4P | Río Manso medio | Bariloche | Río Negro | Río | LS |
| 18.02.03 | 3 | Conf. R. Malleo. Aluminé | | Neuquén | Río | LS |
| 8.03.03 | 4 | Ea. Tecka, Sec. Caridad | | Chubut | Laguna, Río?? | LS |
| 13.03.03 | 4 | Río Limay, Valle Encantado | Los Lagos | Neuquén | Río, remanso | LS |
| 12.04.03 | 3 | Los Moscos | Bariloche | Río Negro | Lago,juncal | MAG |
| 15.07.03 | 2 | Lag. Rosales | Lacar | Neuquén | Laguna | GD,SF,FF |
| 16.07.03 | 6 | Ea. Matarasso 39º57'S, 71º05'W | Huiliches | Neuquén | Bañado | GD,FF |

Referencias: MAG = Mariano A. Gelain, PA = Pablo Acerbo, LL = Luis López, JMB = Juan Mazar Barnet, GDF = Graciela Dupoy, FF = Fernando Fornarcier, HM = Horacio Matarasso, AT = Ana Trejo, MLC = Mariano L. Costa, RO = Roberto Orduna, LS = Lorenzo Sympson.

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# RECENT STATUS OF MARBLED TEAL IN L'ALBUFERA DE VALENCIA, EASTERN SPAIN

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**SUMMARY**
The Marbled Teal is a scarce species in l'Albufera de Valencia. Since 1992, the implementation of a saltmarsh management plan has favoured the species. Most birds occur in spring and summer, and winter records are rare. Spring arrivals occur in late March when flock size is small (mean 3.0) and maximum count low (20 birds). Between 1994 and 2001, breeding numbers have ranged from 2 to 6 pairs. Hatching takes place mainly in mid-July and brood size has averaged 11.3 ducklings.

**INTRODUCTION**
The Marbled Teal has a fragmented distribution, from Spain and North Africa to the Mediterranean region and Middle East to Pakistan, the Central Asian republics and extreme western China (Scott & Rose 1996). Historic references (Escolano 1611; Orellana 1795) indicate that the Marbled Teal was present in l'Albufera de Valencia from July to November, suggesting breeding may have occurred. Both Vidal (1856) and Docavo (1979) mention small parties during November and December, but the species has become very rare after suffering a major recent decline (Green & Navarro 1997). In 1994, breeding was confirmed for the first time in l'Albufera, where the species is now regarded as a rare breeder and an occasional winter visitor (Dies *et al.* 1999).

**STUDY AREA AND METHODS**
L'Albufera de Valencia (39º20'N, 00º20'W; Eastern Spain) is a coastal lagoon, facing the Mediterranean Sea, with 21,120ha of protected coastal and wetland habitats, comprising a 30km beach, a freshwater lagoon (2,850ha) with *ca.* 350ha of reedbed islands and fringe, and extensive shallow marshes (*ca.* 14,000ha) which have been entirely transformed into rice fields through drainage and impoundment. L'Albufera was legally protected in 1986 and declared a Ramsar site in 1990. Given that the marshes have been fully transformed into rice fields, the main saltmarsh habitat of l'Albufera is now found in the beach barrier, in a place called Racó de l'Olla, a 40ha saltmarsh where a management plan has been implemented since 1992 (Dies 2000).

Records of Marbled Teal in l'Albufera Natural Park, from 1985 to 2001, were gathered. Observation effort was almost constant between months and years. The records (n=671) included date, location, number of individuals, age, sex and activity. In the case of broods, the number of ducklings and age class group (IA: recently hatched, I: <18 days, II: 18-42 days and III: >42 days) were also recorded.

**RESULTS**
**Breeding Phenology**
Records of Marbled Teal were concentrated in spring and summer months (Figure 1), with 62% of records between May and July, mostly in June (24%). Winter records were rare and lowest in February. The average spring arrival date was 27 March (mean Julian date=87; S.D.=21; Range=54-110; n=8; Julian date 1=1 January), the earliest arrival date was 23 February 1999 and the latest 19 March 1996. Arrivals occurred at an earlier date each year from 1994 to 2001 ($r_s$=-0.83; $P$<0.05).

**Figure 1. Monthly distribution (%) of records of Marbled Teal in l'Albufera de Valencia (E. Spain).**

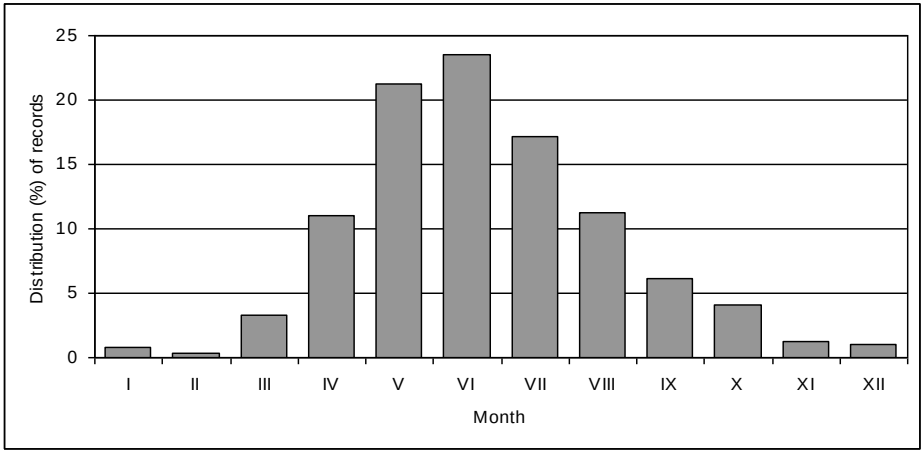
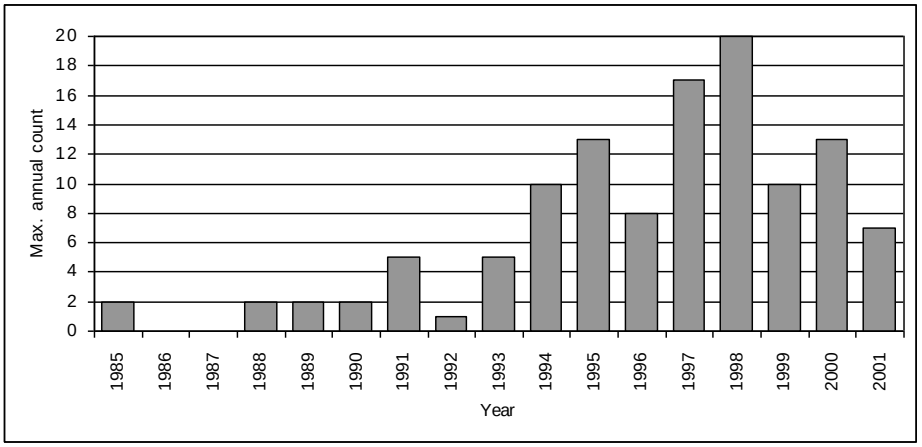
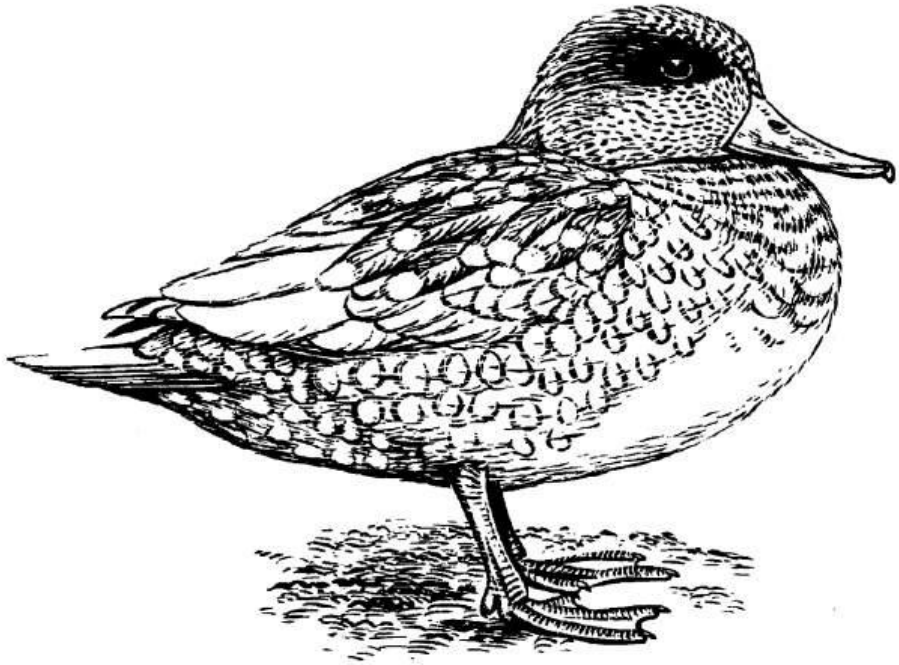



**Figure 2. Maximum annual counts (1985-2001) of Marbled Teal in l'Albufera de Valencia (E. Spain).**





**Abundance**
Numbers of Marbled Teal in l'Albufera de Valencia have increased since 1993, peaking at 20 individuals in 1998 (Figure 2). Average flock size was 3.0 birds (S.D.=2.5; Range=1-20; n=517). Most records referred to paired birds (33%), followed by single individuals (28%). Flock size increased through the spring showing two peaks, in July (4.2 birds) when males gathered and in September (3.9 birds) when juveniles gathered. Flock size decreased in October and during the winter months.

**Habitat Selection**
Five different habitats were available to Marbled Teal in l'Albufera de Valencia, although only three were used. Most records were concentrated in the Racó de l'Olla saltmarsh (94% of 639 records), the rest occurred in rice field marshes (3%) and lagoon reedbeds (3%). Although observation effort differed between habitats, the species is still thought to be very scarce out of the saltmarsh habitat in l'Albufera. No records occurred in irrigated vegetable fields or seashore.

**Breeding**
Pair bonds were mostly already formed on arrival, although birds were observed in aerial courtship flights, particularly during April and May. Courtship flocks consisted of 2-5 males and 1-2 females. Copulation was observed on three occasions (21 April 1996, 24 April 1996, 26 March 1998). The breeding population (defined as the number of broods counted) between 1994 and 2001 ranged from two to six pairs but no breeding was confirmed in 2002. Breeding was suspected in 1991 (three juveniles seen on 26 August in the Racó de l'Olla; J. Huertas *in* Dies & Dies 1992) and 1993 (family flock seen on 27 July in Zacarés; J. Prosper & E. Fuster *in* Dies & Dies 1995).

Most broods were observed in the Racó de l'Olla (91%), the remainder in the Mata de

Llebeig lagoon, and the rice field marshes (tancats de la Ratlla y de l'Estell). Recently hatched broods in the Racó de l'Olla were found in saltwater ponds with saltmarsh vegetation (*Arthrocnemum* spp., *Salicornia herbacea*, *Suaeda vera*) and loose reedbeds (*Phragmites australis*).

The average hatch date was 18 June (mean Julian date=169; S.D.=16; Range=142-190; n=24), the earliest 22 May and the latest 9 July. Brood size was 11.3 ducklings for class IA (S.D.=2.11; Range=6-14; n=24; Median=12), 9.86 for class I (n=51), 8.91 for class II (n=22) and 8.5 for class III (n=6). Records of ducklings without attending adults (13% of records, n=108) were not included. Brood attendance by male Marbled Teal was observed on six occasions (5.6% of duckling records), and mostly referred to males closely following females with ducklings. These cases probably involve courting males, though females usually chased males if they approached their brood. In one case (27 June 2001) a male led a brood of 10 class III ducklings.

**ACKNOWLEDGEMENTS**

To Ignacio Lacomba and Juan Antonio Gómez (Consellería de Medi Ambient) and Antonio Vizcaíno, Joan Miquel Benavent and Francisco Collado (Oficina Técnica Devesa-Albufera) for their interest in the monitoring of the species carried out during the study period. To colleagues working at the Centre de Protecció i Estudi del Medi Natural. To Andy Green for kindly responding to several queries.

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# ECOLOGY OF A VULNERABLE SINGLE ISLAND ENDEMIC: SALVADORI'S TEAL

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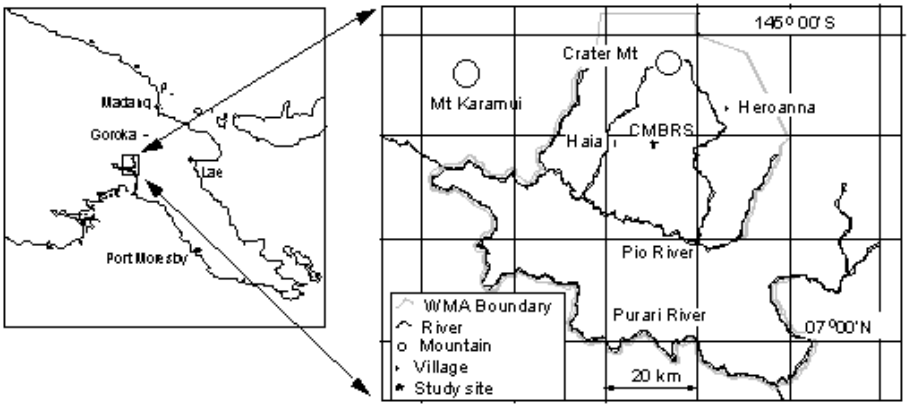
Salvadori's Teal is a secretive inhabitant of fast-flowing streams and alpine lakes between 500 and 3,700m in the mountains of New Guinea (Beehler *et al*. 1986). It is one of only four waterfowl species that are adapted to life on fast-flowing rivers, and the sole endemic duck species of New Guinea (Diamond 1972). The species is recognised by IUCN as Vulnerable, and the total population may be slowly declining (BirdLife International 2000). However, no one really knows the status of the birds because few surveys have been conducted to provide reliable population estimates.

In addition, very little is known about the basic biology of Salvadori's Teal. Information is needed on distribution, breeding biology, territoriality, and habitat needs in order to direct conservation and management efforts for the species.

Last year I began a two-year study designed to collect basic natural history information about Salvadori's Teal in Papua New Guinea. I began by conducting a survey for the birds to learn more about distribution and territory sizes, establish baseline population numbers for future monitoring, and to identify study sites in which to concentrate my work in 2003. This report describes the results of my survey, and outlines my plans for further research.

I conducted this study from March to May 2002, concentrating my efforts in the Crater Mountain Wildlife Management Area (CMWMA), a nearly pristine tract of forest located in the Eastern Highlands Province of Papua New Guinea (Figure 1).



The CMWMA contains numerous mountain streams within the entire elevational range of Salvadori's Teal, which offered opportunities to survey streams in watersheds containing low levels of human disturbance, mostly swidden gardens, selected logging for house building and firewood collection. I also conducted surveys on five lakes including two alpine lakes located near Mt. Wilhelm in Simbu Province.

Due to the rugged terrain and the birds' extreme wariness, I developed a survey methodology in which observations were conducted at trail/stream intersections, which seemed to provide a reasonable level of detection. I also conducted behavioural observations on three pairs of teal inhabiting an alpine lake - birds on the rivers were too cautious to observe for more than a few minutes.

I observed Salvadori's Teal at nine of the 13 survey sites located on streams (69%) and on two of the five lakes visited (40%). Ducks were no less common on streams at the lower end of their range (~600m) than at higher elevations (up to 1300m), but they weren't observed on lakes at the lower end of their distribution. Birds were generally seen singly or in pairs, although threesomes were observed in two cases. All birds appeared to be adults. The ducks were not nesting at this time, and no ducklings were seen. Villagers report that nesting takes place in October/ November in some areas, but June/July in others. Nests are described as depressions in tufts of grass atop large boulders within or on riverbanks. Clutch size estimates ranged from 2-10 eggs.

My results indicate that the birds are fairly common but probably very widely spaced along the rivers in the CMWMA. They are unlikely to be seen by the casual observer due to their wariness of humans, which may make them appear more rare than they really are. Villagers were aware of the birds' presence on rivers, but had no concept of population numbers or densities. When asked how many ducks lived on their rivers, the answer was usually "plenty" although it was likely that they were seeing the same pair repeatedly. Unlike other obligate river duck species, such as African Black Duck *Anas sparsa*, Salvadori's Teal may be resident on alpine lakes as well as mountain streams (Ball *et al*. 1978). Further observation of ducks living on these lakes along with evidence of successful reproduction is needed to confirm this hypothesis.

I was unable to capture ducks in mist nets due to the dangerous nature of most of the rivers, and the ability of the birds to detect and avoid nets placed in their territories. It would greatly enhance the study to have marked birds that could be individually identified and much more could be learned about movements and territory size if radio transmitters could be attached to some birds. Therefore, next year my focus will be on developing successful capture techniques, radio tracking, and conducting similar surveys in watersheds that have been significantly disturbed by logging and/or mining operations. I will also gather more behavioural observations and information on reproductive success if possible.

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# SCALY-SIDED MERGANSER BREEDING POPULATION INCREASE IN FAR EAST RUSSIA

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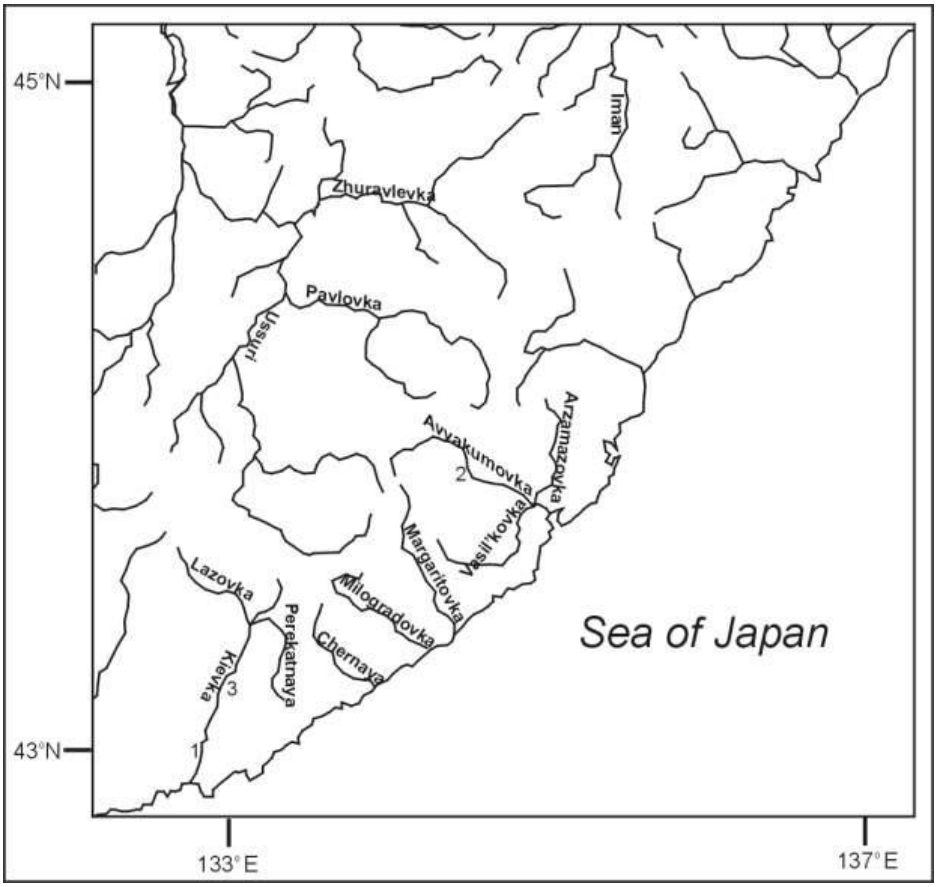
**ABSTRACT**
The spring density of Scaly-sided Mergansers along 11 rivers in the Primorye region of the Russian Far East averaged 0.54 ± 0.40 (S.D.) birds/km in 2000 and 2001. Mean density of breeding pairs was 0.23 ± 0.13 pairs/km and mean brood density 0.15 broods/km along 16 rivers. Breeding pair density was significantly correlated with brood density along the same rivers. Between the 1970s/1980s and the early 2000s, the density of breeding Scaly-sided Mergansers on ten rivers in the Central Primorye has more than doubled. Brood-rearing females comprised 67% of adult Scaly-sided Mergansers in 2000, and 47% in 2001. Downies/juveniles comprised 81% in 2000 and 74% in 2001. Brood size averaged 6.16 ± 2.77 (S.D.) ducklings in 2000 and 6.05 ± 2.36 in 2001, an insignificant difference.

**INTRODUCTION**
The Scaly-sided Merganser is among the rarest seaducks in the Old World. This species breeds in a restricted area in south-east Russia and north-east China, and winters inland in China and Korea (Shibnev 1989). The majority of the breeding population is found in the Russian Primorye (BirdLife International 2001). The size of the world population is poorly known and has been estimated at 2,400–4,500 individuals (Hughes & Hunter 1994; BirdLife International 2001). A dramatic 20-fold decline in Scaly-sided Merganser numbers was recorded in 1960s along 50km of the Sukpay River in the Primorye (Yakhontov 1977). Numbers elsewhere in the Sikhote-Alin Mountains also declined from the 1960s to the early 1980s, but have since stabilized or even increased slightly (Kolomiytsev 1992; Bocharnikov & Shibnev 1994). The Scaly-sided Merganser is included in the Red Data Books of IUCN, Russia (category 3 – rare), China and South Korea. This study provides a recent estimation of the numbers of Scaly-sided Mergansers on the rivers of the Central Primorye. Additional information on brood size and sex-age structure of the breeding population are also presented.

**STUDY AREA AND METHODS**
A total of 16 rivers in the Central Primorye, Russia, were surveyed for Scaly-sided Mergansers during 2000 and 2001 (Figure 1). These ranged from 40 to 450km long and were situated on both east and west slopes of the Sikhote-Alin Range. Short rivers were surveyed in their entirety while long rivers were surveyed in part. The upper 30km of each river was not surveyed as these represent unsuitable habitat for Scaly-sided Merganser (Kolomiytsev 1990). In total, 1,550km of river were surveyed over 81 days, including repeat surveys. Five rivers were surveyed in both spring and summer of each year. A further five rivers were surveyed in spring 2001 and another 11 in summer 2001. Rivers were surveyed using a combination of rubber boat and foot surveys (Kolomiytsev 1990). Counts began soon after the Scaly-sided Mergansers arrived on their breeding rivers once the river ice had broken up - on 24 April 2000 and on 10 April 2001. Surveys continued throughout the breeding season until all offspring had fledged - on 5 August 2000 and 16 September 2001.

**Figure 1. Scaly-sided Merganser study area in the Central Primorye, Far East Russia. Small rivers are numbered: 1 – Krivaya; 2 – Mineral'naya; 3 – Benevka.**




Data from spring surveys, which were conducted before 10 May each year, were used to estimate breeding densities. After this date, males start to leave nesting territories. Spring surveys were equally distributed during daylight hours. Brood densities were estimated from surveys conducted between 10 June and 20 August, the period when most ducklings have hatched, but before they fledge. Summer surveys were conducted during morning (0600-1100) and evening (1700-2100) periods as broods often roosted out of sight during the hot daylight hours.

Only birds left behind by the boat or fieldworker were recorded. The following sex-age groups were distinguished: breeding pair, brood-rearing female, non-breeding or failed female, young male flock, flock of unknown sex, flock of unknown age. Trios (male and two females), single males and single females were also considered as breeding pairs during spring surveys. Breeding density and brood density were expressed as the number of breeding pairs / broods per km of river (± 1 S.D.).

**RESULTS**

**Sex-age Structure**

The sex-age structure of the Scaly-sided Merganser population changed as the breeding season progressed (Figure 2). Only adult birds were present on the rivers in springtime with young appearing later in the season. The spring population of Scaly-sided Merganser consisted of breeding territorial family groups (pairs and trios) and non-breeding adult birds. Trios, with a male and two females, were often found, as is normal for this species. Trios are formed when additional females join pairs usually after arrival on the breeding grounds.

A total of 13 trios and 63 pairs were counted during spring surveys. Thus 17% of families were trios.

During summer surveys, brood-rearing females made up 67% of all adult Scaly-sided Mergansers in 2000, and 47% in 2001. The proportion of young was 81% in summer 2000 and 74% in summer 2001.

**Brood Size**

Brood size averaged 6.16 ± 2.77 ducklings in 2000 and 6.05 ± 2.36 ducklings in 2001, an insignificant difference ($t_{41}$=0.28, n.s.). Brood size did not vary between months (ANOVA, $F_{5,137}$=0.33 (n.s.) (Figure 3).

**Figure 2. Sex-age structure of the Scaly-sided Merganser in the Central Primorye, Far East Russia, during the breeding seasons of 2000 and 2001.**

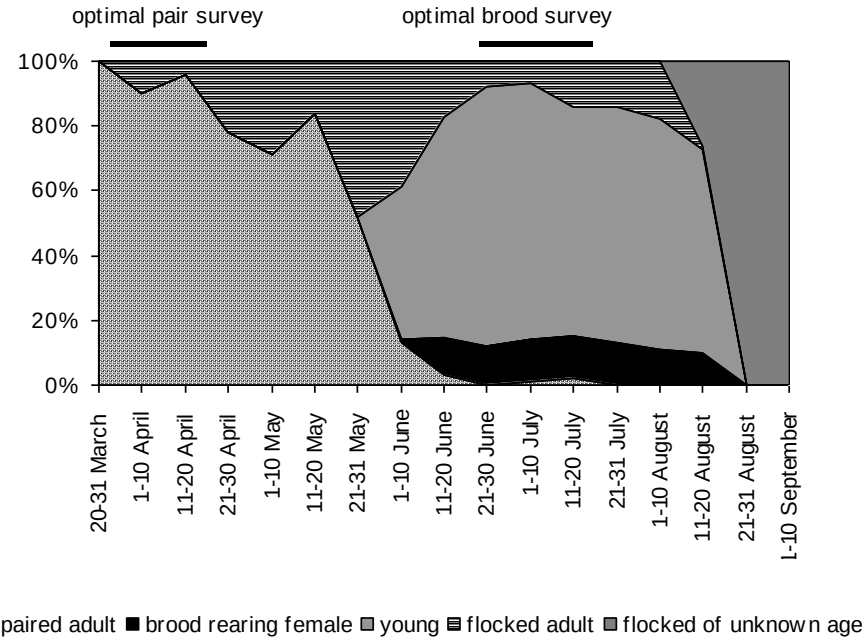
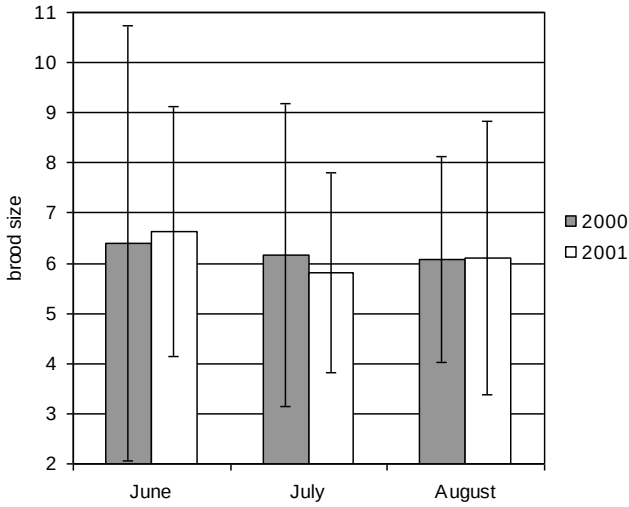



**Figure 3. Brood size (± 1 S.D.) of Scaly-sided Mergansers during the 2000 and 2001 breeding seasons in the Central Primorye, Far East Russia.**




**Densities**

Spring densities of Scaly-sided Merganser along eleven rivers in the Primorye are given in Table 1. Density averaged 0.54 ± 0.40 inds/km for all rivers surveyed over both years. Average breeding density was 0.23 ± 0.13 pairs/km. Five rivers were surveyed in springs of both years with no significant difference in both total density ($F_{1,8}$=1.83, n.s.) and breeding density ($F_{1,8}$=0.05, n.s.). In total, 128 and 338 adult birds were counted during spring surveys in 2000 and 2001, respectively.

Brood densities of Scaly-sided Merganser along five rivers in the Primorye in 2000 and along sixteen rivers in 2001 are given in Table 2. A total of 234 birds (adults and ducklings) was counted during brood surveys in 2000 and 845 birds in 2001. No difference in brood density was apparent between years (ANOVA, $F_{1,8}$=0.03, n.s.) along five rivers surveyed for broods in both years. Breeding pair density was significantly correlated with brood density along the same rivers (R=0.801, p<0.05, Figure 4).

**DISCUSSION**

**Sex-age Structure**

As the rivers under investigation were situated over a 300km range, from north to south, on both slopes of the Sikhote-Alin Mountain Range, breeding phenology was not synchronous within the study area. Scaly-sided Mergansers arrived in the south-west of the study area (on the Kievka River) on 27 March 2000 and 23 March 2001, but 1-2 weeks later in the north-east (on the Iman River) on 8 April 2000 and 2 April 2001. Between years, the onset of laying, hatching and fledging depends largely on weather conditions (Kolomiytsev 1992; Bocharnikov & Shibnev 1994; Yelsukov 1994; Zhengjie *et al*. 1994).

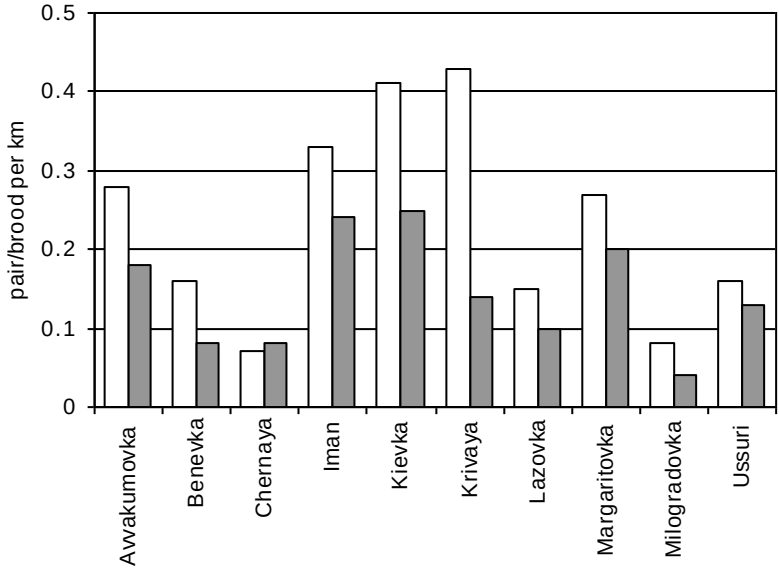
**Table 1. Densities of Scaly-sided Merganser on ten rivers of the Central Primorye, Far East Russia from mid-April until 10 May 2000/2001).**

| River | Distance (km) | 2000 | | 2001 | | Total | |
|---|---|---|---|---|---|---|---|
| | | Density (inds/km) | Breeding Density (prs/km) | Density (inds/km) | Breeding Density (prs/km) | Density (inds/km) | Breeding Density (prs/km) |
| Avvakumovka | 28 | - | - | 1.39 | 0.28 | 1.39 | 0.28 |
| Benevka | 25 | 0.16 | 0.12 | 0.28 | 0.16 | 0.22 | 0.14 |
| Chernaya | 30 | - | - | 0.17 | 0.07 | 0.17 | 0.07 |
| Iman | 12 | 0.75 | 0.38 | 0.6 | 0.33 | 0.68 | 0.36 |
| Kievka | 85 | 1.12 | 0.45 | 0.85 | 0.41 | 0.99 | 0.43 |
| Krivaya | 28 | 0.54 | 0.29 | 0.79 | 0.43 | 0.67 | 0.36 |
| Lazovka | 20 | 0.2 | 0.1 | 0.25 | 0.15 | 0.23 | 0.13 |
| Margaritovka | 30 | - | - | 0.47 | 0.27 | 0.47 | 0.27 |
| Milogradovka | 25 | - | - | 0.16 | 0.08 | 0.16 | 0.08 |
| Ussuri | 45 | - | - | 0.45 | 0.16 | 0.45 | 0.16 |
| **Total/Average** | **328** | **0.55** | **0.27** | **0.54** | **0.23** | **0.54** | **0.23** |

**Table 2. Densities of Scaly-sided Merganser on 16 rivers of the Central Primorye, Far East Russia, during the brood rearing period from 10 June to 20 August 2000/2001.**

| River | Distance (km) | 2000 | | 2001 | |
|---|---|---|---|---|---|
| | | No. of Broods | Density (brds/km) | No. of Broods | Density (brds/km) |
| Avvakumovka | 45 | | | 8 | 0.18 |
| Arzamazovka | 26 | | | 1 | 0.04 |
| Benevka | 25 | 2 | 0.08 | 2 | 0.08 |
| Chernaya | 30 | | | 2 | 0.08 |
| Iman | 21 | | | 5 | 0.24 |
| Kievka | 85 | 19 | 0.22 | 21 | 0.25 |
| Krivaya | 28 | 3 | 0.11 | 4 | 0.14 |
| Lazovka | 20 | 4 | 0.20 | 2 | 0.10 |
| Margaritovka | 25 | | | 5 | 0.20 |
| Milogradovka | 50 | | | 2 | 0.04 |
| Mineral'naya | 20 | | | 1 | 0.05 |
| Pavlovka | 70 | | | 14 | 0.20 |
| Perekatnaya | 25 | 2 | 0.08 | 2 | 0.08 |
| Ussuri | 70 | | | 9 | 0.13 |
| Vasil'kovka | 35 | | | 7 | 0.20 |
| Zhuravlevka | 70 | | | 9 | 0.13 |
| **Total/Average** | **645** | **30** | **0.16** | **94** | **0.15** |

**Figure 4. Breeding pair density (open columns) and brood density (shaded columns) of Scaly-sided Mergansers on ten rivers in the Central Primorye, Far East Russia, in the 2000 and 2001 breeding seasons.**




Both 2000 and 2001 springs were cold and late, which led to delays in hatching. Breeding seasons in the 1980s were similarly late, during which birds arrived on the Kievka River on 29 March (Kolomiytsev 1992). We saw our first broods on 2 June 2000 and 28 May 2001, compared to the earliest hatch date of 15 May (Kolomiytsev 1992).

Birds were seen in flocks throughout the breeding season, but did not exceed 20% of the population (Figure 2). In April and early May, these birds may be migrants heading for other breeding areas, in late May they were probably adult males flocking before departure. Later in the season, failed nesting females also formed flocks. Sub-adult non-breeders are known to visit the breeding grounds and to stay there flocked or even paired (Kolomiytsev 1992). Broods stay on natal rivers until fledging, so the ratio between breeding pair density and brood density may serve as an indicator of nesting success. Thus in 2001 nesting success was estimated as 62%. The summer adult population (after male departure) should therefore consist of 62% brood-rearing females and 38% failed breeding females. However, the proportion of brood-rearing females was only 47%. This might be explained by the presence of non-breeders on the same rivers.

**Brood Size**

Various studies have suggested that brood size in Scaly-sided Merganser averages 6-8 ducklings (Bocharnikov & Shibnev 1994; Kolomiytsev 1992; Semenchenko & Ermolaenko 1988; Shibnev 1985; Yelsukov 1994). Our results (6.16 $\pm$ 2.77 in 2000, 6.05 $\pm$ 2.36 in 2001) are consistent with this. Brood amalgamation is common in Scaly-sided Mergansers, in which single females may rear more than 14 and up to 30 young (see review in Kolomiytsev 1992). No obvious brood amalgamation was recorded during this study, the largest brood numbering 12 ducklings.

**Bird and Brood Densities**

Bird and brood densities differed on the rivers of Central Primorye (Tables 1 & 2)

with the Iman, Krivaya and Kievka Rivers having the highest breeding densities (>0.3prs/km). The Iman River is 450km long and situated on the western slope of Sikhote-Alin Range, whilst the Kievka (130km) and Krivaya (80km) Rivers are both on the eastern slope (Figure 1). Rivers with medium breeding densities (of 0.1-0.3 prs/km) are also situated on both slopes: the Avvakumovka, Benevka, Lazovka and Margaritovka on the eastern slope and the Ussuri on the west. High brood densities (>0.2 brds/km) were also found on both slopes – on the Iman and Pavlovka Rivers on the east and the Kievka, Margaritovka and Vasil'kovka on the west. The size (length) and location (eastern or western slope of the Sikhote-Alin Range) of rivers is seemingly not a major factor determining Scaly-sided Merganser breeding density.

Flocked birds were more common than pairs on the Avvakumovka (1.39 inds/km versus 0.28 prs/km) and Ussuri (0.45 inds/km versus 0.16 prs/km) Rivers. Elsewhere most of the spring adult population consisted of families (Table 1). The number of broods correlates reasonably well with the number of families along the same rivers in spring, except for the Krivaya River (Figure 4).

On average, brood density was 1.63 times less than breeding density along the same river (n=10). This coefficient was used for the data transformation for comparisons in Table 3. Historical densities (mostly pre-1980) of Scaly-sided Mergansers were compared for 10 rivers included in our surveys (Table 3). These suggest that the density of Scaly-sided Merganser has increased by a factor of 2.2 between the 1970s/1980s and the early 2000s. This increase, which started during the early 1990s, appears to be continuing (Kolomiytsev 1992; Bocharnikov & Shibnev 1994; our data). The reasons for this increase are poorly known, however habitat restoration may be the main factor. Logging of river flood-plains took place between the 1940s and 1970s.

Today, broad-leaved trees which were too small to be logged then, will be old enough to contain nesting cavities. Nevertheless, natural population processes could also be responsible for these long-term fluctuations.

**Global Population Estimate**

Even in the absence of an up-to-date estimate of breeding numbers in China, we suggest that the world population of the Scaly-sided Merganser could be >10,000 individuals. This optimistic estimation is based on the fact that we recorded about 1,000 individuals during one summer along about 700km of rivers. Approximately 600 rivers, with an average length of 80km (50km suitable for the species), are inhabited by Scaly-sided Mergansers in Russia. Even assuming a 70% mortality of young by the next spring and that half of nesting rivers would have less than twice the density of the rivers surveyed, the spring population of Russian origin would be 12,500 individuals.

**ACKNOWLEDGEMENTS**

We express our appreciation to all participants of field surveys. They are Sergey Vartanyan, Denis Kochetkov, Aleksandr Styshov, Vladimir Manaev, Aleksei Bezrucov, Jury Sundukov, Evgenii Linnik, Andrei Sokolov, and Aleksei Petrovskih. Field expeditions were sponsored by Lundi Co., Verl, Germany, in 2000 and by the Wildfowl & Wetlands Trust, Slimbridge, UK and the World Wildlife Foundation, Russia in 2001. Logistic support was provided by the Lazo State Nature Reserve, Russia.

**Table 3. Historical and current densities of Scaly-sided Merganser on ten rivers of the Central Primorye, Far East Russia. * - Breeding density (prs/km) is calculated from brood density (broods/km) using a coefficient of 1.63 (see text).**

| River | Years | Historical Density (per km) | | | Recent Density (per km) | | | Source |
|---|---|---|---|---|---|---|---|---|
| | | Inds | Pairs | Broods | Inds | Pairs | Broods | |
| Avvakumovka | 82, 84 | | 0.08 | | | 0.28 | | 1 |
| Arzamazovka | 82, 84 | | 0.03 | | | 0.07* | | 1 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Benevka | 74-75 | | 0.06 | | | 0.14 | | 2 |
| Chernaya | 82 | | 0.00 | | | 0.07 | | 3 |
| Iman | 89-90 | | | 0.15 | | | 0.24 | 4 |
| Kievka | 81-84 | | 0.11 | | | 0.43 | | 3 |
| Lazovka | 81 | | 0.10 | | | 0.13 | | 5 |
| Margaritovka | 82 | 0.17 | | | 0.47 | | | 3 |
| Perekatnaya | 74-75 | | 0.14 | | | 0.13* | | 2 |
| | 81 | | 0.10 | | | 0.13* | | 5 |
| Vasil'kovka | 82, 84 | | 0.15 | | | 0.33* | | 1 |

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# BRAZILIAN MERGANSER MAY SURVIVE IN PARAGUAY

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With only two historical records it is clear that the Brazilian Merganser has always been rare in Paraguay. The first reports of the species in the country are from Bertoni (1901) who considered the species to occur in small streams along the Paraguayan side of the Río Paraná basin in Alto Parana department in 1891. The latitude referred to (27°S) corresponds to present day Itapúa department. The second sighting in Paraguay was by Nancy López on the Rio Carapá, just upstream (west) of Catueté, Canindeyú department, in February 1984. Although these records are restricted to the Rio Paraná basin, there is at least one unsubstantiated citation of the species occurring within the Rio Paraguay basin (Collar *et al*. 1992).

The lack of recent sightings of Brazilian Mergansers in Paraguay suggests the species may now be extinct in this country (Hayes & Granizo 1990; Brooks *et al*. 1993). Most rivers in Paraguay are severely degraded with only short sections of two rivers - the Pozuelo and the Carapá – believed to remain relatively pristine. Even these are periodically inundated with sediment, and presumably agrochemicals. Most rivers which may once have been suitable for the species have suffered major deforestation, particularly in the Paraná river drainage. All must now carry huge year-round sediment loads as a result of widespread soil erosion. In addition, the completion of the Itaipu dam flooded the lower reaches of the tributaries of the Río Paraná in Canindeyú and northern Alto Paraná departments.

In 2002, Guyra Paraguay conducted interviews with local people in the vicinity of the Mbaracayú Biosphere Reserve, Canindeyú department. All interviews were conducted in Guarani - one of the indigenous languages of Paraguay – and subsequently translated to Spanish. Although the interviews focused on other taxa, six reports of Brazilian Merganser were received. The headwaters of the Carapá River (the river where Nancy López reported Brazilian Merganser in 1984) lie just a few kilometres to the east of the reserve. Surveys for Brazilian Merganser are urgently required in the Mbaracayú Biosphere Reserve and in the few relatively pristine areas lying to the east and south-east (for instance the rivers Carapá, Pozuelo and Acaray-mi) to investigate whether the species survives there.

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# BRAZILIAN MERGANSERS IN SERRA DA CANASTRA NATIONAL PARK, MINAS GERAIS STATE, BRAZIL

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The Brazilian Merganser is one of the rarest birds of the world, categorized as Critically Endangered by IUCN (IUCN 2002). In 1981, Bartmann first recorded this bird at the 71,525ha Serra da Canastra National Park in Minas Gerais, Brazil. Ten years later in 1991, we began a "cerrado" ecosystem study, giving special attention to the Brazilian Merganser. Fieldwork at Serra da Canastra was carried out from 1991 to 1994, and since 2000.

In 1991, two pairs of mergansers were observed on the São Francisco River, one pair occupying a 14km long territory in the highest area of the Park, the other just above the Casca D'Anta Waterfall. In recent years, four different pairs have been observed on the São Francisco River (Table 1).

According to Partridge (1956) and Bartmann (1988), nesting takes place from June to October, with July being the most common month for incubation and August for hatching. Our recent observations suggest that hatching took place mainly in July. During 2001 and 2002, the four pairs of birds we observed reared a total of 21 ducklings. As far as we are aware, the brood size of eight recorded on 6 August 2001 is the highest ever observed in this species.

Brazilian Mergansers require clear streams and rivers flowing through remote sub-tropical forest and cerrado with gallery forest. Habitat loss, through deforestation of gallery forest, remains the key threat to the species. Diamond exploitation, agricultural expansion, logging, human habitation, hotel construction, human disturbance, and cattle ranching also threaten the merganser.

**Table 1. Brazilian Merganser records on the São Francisco River, Serra da Canastra National Park, Minas Gerais, Brazil, 2001-2002.**

| | | | |
|---|---|---|---|
| **2001** | | | |
| Group 1 | Pair + 2 ducklings (1-2 weeks old) | 9 August | 1415h |
| Group 2 | Pair + 3 ducklings | 8 August | 1100h |
| Group 3 | Pair + 8 ducklings (4-5 weeks old) | 6 August | 1130h |
| Group 4 | Pair | 7 August | 1050-1130h, 1400h |
| **2002** | | | |
| Group 1 | Pair + 2 ducklings (1-2 weeks old) | 1 August | 1325-1630h |
| Group 2 | 1 male | 29 July, 2 August | 1155h, 1015h |
| Group 3 | Pair + 3 ducklings | 3 August | 1515-1545h |
| Group 4 | Pair + 3 ducklings | 1 August | 0930-0955h |

Habitat degradation, such as siltation caused by diamond mining, has posed a significant threat to the Brazilian Merganser near Serra da Canastra National Park. Fortunately, commercial diamond extraction was banned in 1996. Other threats include hydrological change, inbreeding, hunting, competition, forest fires, pollution, egg-collecting, pesticides and predation.

The Brazilian Merganser population in and around Serra da Canastra National Park appears to be relatively healthy, but its continued survival depends on the effective conservation of the natural areas in and around the Park.

Education programmes, using the Brazilian Merganser as a flagship species, for visitors to the Park and for local people will be crucial, especially the education of local schoolchildren. Local interest groups need to be formed to promote the conservation of the Brazilian Merganser and consequently the Brazilian savannah habitat ("cerrado") it inhabits.

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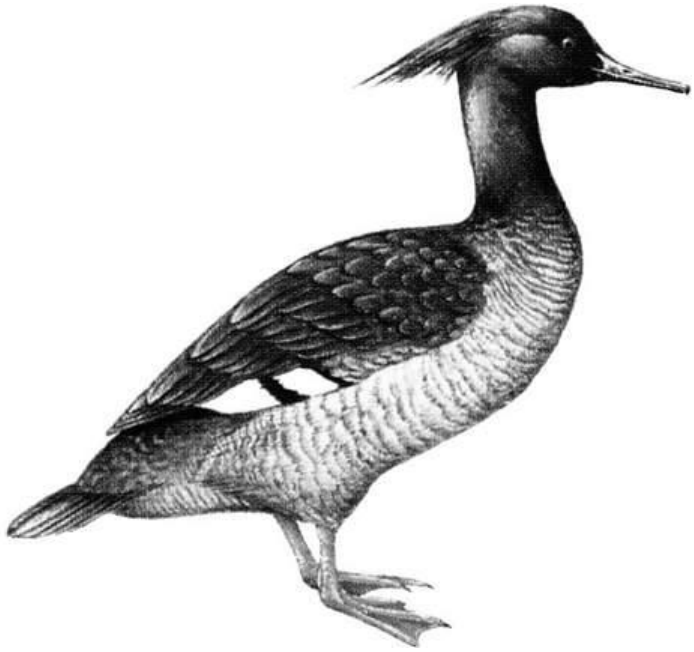

# POPULATION GENETICS OF WHITE-HEADED DUCKS AND NORTH AMERICAN RUDDY DUCKS

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## INTRODUCTION

Ruddy Ducks were observed for the first time in Spain in 1984. A North American species, Ruddy Ducks were introduced to Great Britain in the 1950s, after which individuals from an expanding population dispersed to other European countries. In Spain, Ruddy Ducks and White-headed Ducks occur sympatrically and hybrids of the two species were observed for the first time in Spain in the early 1990s.

While Ruddy Ducks are an exotic species in Europe and are doing well in North America, the White-headed Duck is the only stifftail native to the Western Palearctic, is declining in much of its range (Green & Hughes 2001), and is classified as Endangered according to the IUCN criteria (IUCN 2002). In Spain, after recovering from a severe bottleneck (only 22 individuals were counted in 1977; Torres & Moreno 2000a), hybridisation with Ruddy Ducks is now considered the greatest threat to the survival of this species (Green & Hughes 1996, 2001).

We sequenced a fragment of the mitochondrial DNA (mtDNA) control region for a sample of Ruddy Ducks and White-headed Ducks. Conserved differences were found between the two species, as well as intraspecific variability within species. Control region sequences provide information on the maternal origin of hybrids, genetic variability, and the origin of Ruddy Ducks in Europe. Here we summarise genetic differences observed between populations, and results from hybrids shot in Spain.

## MATERIAL AND METHODS

### Samples

We collected and analysed a total of 161 samples, including 95 Ruddy Ducks (North America, n=52; Iceland, n=3; UK, n=8; France, n=10; Spain, n = 22); 30 White-headed Ducks (Greece, n=7; Spain, n=23) as well as 36 hybrids from Spain, the main zone of hybridisation. Additional sequences of 12 Ruddy Ducks from North America were provided by Kevin G. McCracken.

### Molecular Methods

Genomic DNA was extracted using the protocol outlined by Gemmell & Akiyama (1996) or with the DNeasy Tissue Kit (QIAGEN). We sequenced a portion of the mitochondrial DNA control region using primers L78 (Sorenson & Fleischer 1996) and H774 (Sorenson *et al*. 1999). Polymerase chain reaction (PCR) products were gel-purified and sequenced using an automated DNA sequencer (Applied Biosystems, ABI 377 or ABI 310). Sequences were reconciled using Sequence Navigator 4.1.2 (Perkin Elmer Applied Biosystems, Norwalk, USA) and Sequencer 3.1 (Gene Codes Corporation, Ann Arbor, Michigan, USA) and were aligned by eye using Se-Al 1.0 alpha 1 (Andrew Rambaut, University of Oxford, UK).

## RESULTS

### Genetic Variation in mtDNA Control Region

Among the Ruddy Ducks, 20 different haplotypes (i.e. uniquely different mtDNA sequences) were observed, whereas only four different haplotypes were found in White-headed Ducks (Table 1).

**Table 1. Summary of haplotypes based on a sequence of the control region mtDNA of White-headed Ducks and Ruddy Ducks.**

| Population | No. of individuals analysed [(1)] | No. of haplotypes |
|---|---|---|
| **Ruddy Duck** | | |
| North America | 64 | 20 |
| UK | 8 | 1 |
| France | 10 | 1 |
| Iceland | 3 | 1 |
| Spain | 22 (17) | 1 |
| Total | 107 (17) | - |
| **White-headed Duck** | | |
| Spain | 23 (19) | 3 |
| Greece | 7 | 2 |
| Total | 30 (19) | - |

Note [(1)] The number of hybrids with the mtDNA of each species is shown in brackets.

Among White-headed Ducks, just three variable sites define the four haplotypes, three of which occur in the Spanish population and two of which are in the Greek population. The most common haplotype was the same for both the Greek and the Spanish population, whereas rare haplotypes were restricted to one of the two populations.

Among Ruddy Ducks from North America, 20 different haplotypes were found. In contrast, all European Ruddy Ducks shared a single haplotype, identical to the most frequent haplotype in the North American population (found in 41% of the birds studied from North America). Thus, Ruddy Ducks in their native range exhibit substantially more haplotypic variation than either White-headed Ducks or Ruddy Ducks in their introduced range.

**Maternal Origin of Spanish Hybrids**

Of the 36 hybrids studied to date, 17 have Ruddy Duck mtDNA and 19 have White-headed Duck mtDNA. If all these were first generation ($F_1$) hybrids derived from the cross of two pure individuals, then 47% of hybrids result from matings between a female Ruddy Duck and a male White-headed Duck, whereas 53% of hybrids result from crosses between a female White-headed Duck and a male Ruddy Duck. However, initial results suggest that an important number of hybrids are of second or higher generation.

There is evidence of a change over time in these proportions. Whereas 17 of 26 (65%) hybrids shot from 1992 to 1993 had White-headed Duck mtDNA, only 3 of 18 (17%) hybrids shot from 1994 to 2002 had White-headed Duck mtDNA. Of 22 hybrids thought most likely to be $F_1$ based on additional molecular analyses currently in progress, 18 (82%) had Ruddy Duck mtDNA. Thus, the most frequent crosses between pure birds seem to have been between male White-headed Ducks and female Ruddy Ducks. However, the number of hybrids studied does not necessarily reflect the number of crosses that have occurred, as our sample may include siblings produced from the same mating events.

**DISCUSSION**

Our results indicate lower genetic variability among White-headed Ducks as compared to North American Ruddy Ducks. Among 42 White-headed Ducks from Spain, only three haplotypes were found. Among Greek White-headed Ducks, two haplotypes were found but our sample is small and not representative of the population as a whole. It is noteworthy that one of these two haplotypes was not recorded in the Spanish population.

Low genetic variability may reflect one or more bottlenecks in a species history, limited dispersal of individuals, and/or low mutation rates. In the case of Spanish White-headed Ducks, the most likely explanation for low genetic variability is the severe bottleneck suffered by the population in the 1970s. The population has since recovered, with a peak of 4500 individuals counted in 2000 (Torres & Moreno 2000a).

The European Ruddy Duck population has gone through a great expansion since the 1960s, when the first breeding individuals in the wild were observed in Great Britain (Hughes & Grussu 1994). Since that time, Ruddy Ducks have dispersed to other

European countries (Kershaw & Hughes 2002) and in 2000, five thousand individuals were counted in Great Britain alone (Wetland Bird Survey data). All the European Ruddy Ducks we sequenced (n=43) were identical in mtDNA sequence, reflecting the origin of this population from a small founding population. This absence of genetic variability stands in contrast to that of North American Ruddy Ducks, in which 20 different haplotypes were found among 64 individuals.

All European Ruddy Ducks probably descend from seven individuals (four males and three females) brought into captivity at the Wildfowl & Wetlands Trust, Slimbridge, UK, from which about 90 descendants escaped between 1953 and 1973 (Hughes 1992). Additional escapes or releases also may have occurred from other captive collections (Rose 1993), but these probably involved descendants of the same seven birds imported from North America.

Our results are consistent with a single source for the entire European population. Likewise, there is no evidence of multiple arrivals from the North American continent, whether due to the arrival of vagrants or repeated imports of captive birds. The Icelandic Ruddy Ducks we have studied have the same haplotype as birds from the rest of Europe, suggesting that the migratory Icelandic population has originated from the expanding population in Great Britain (Nielsen 1994) and not from North American vagrants.

First generation hybrids produced from a cross between a male Ruddy Duck and a female White-headed Duck have mtDNA from White-headed Ducks, whereas those from a cross between a male White-headed and a female Ruddy Duck have mtDNA from Ruddy Ducks. Our results do not support previous suggestions that hybrids are produced mainly by male Ruddy Ducks forcing copulations on female White-headed Ducks, although this may have been the case in the early 1990s. Our results suggest that hybridisation occurs freely in both directions, although more $F_1$ hybrids may be produced by crosses between male White-headed and female Ruddy Ducks. Since 1994, most hybrids we sampled had Ruddy Duck mtDNA.

Our results may reflect the control programme in Spain in which Ruddy Ducks and hybrids are being removed from the population. Under field conditions, it is easier to distinguish male Ruddy Ducks or hybrids from White-headed Ducks than it is to discriminate among females. This may lead to a higher proportion of males being shot. Thirty of 42 hybrids (71%) that have been shot have been males. Likewise, 64 of 85 Ruddy Ducks (75%) shot between 1994 and 2000 were males (Torres & Moreno 2000b). This compares with a sex-ratio of 53% males in feral birds in the UK and 55% males in North America (Hughes 1998). Greater effectiveness in removing males from the Spanish population may explain a lower than expected proportion of $F_1$ hybrids with White-headed Duck mtDNA (as would result from matings between male Ruddy Ducks and female White-headed Ducks). Further work is required to confirm this. An alternative explanation for the preponderance of males among culled birds could be that male Ruddy Ducks show a greater tendency to move south from the main UK-France population towards Spain than females. However, this seems unlikely as no such sexual difference in migratory behaviour has been reported from the native population in North America.

**ACKNOWLEDGEMENTS**

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# TWSG TRIENNIAL REPORT, 1999-2001

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**MEMBERSHIP**
Over the course of the 1999-2001 triennium, TWSG membership grew by 21% from 730 in 1999 to 860 in 2000 to 880 in 2001. By 2003, the TWSG had a total of 923 members in 142 countries. Of these most are in Europe (415) although we have significant numbers of members in other continents, most notably Asia (199). Sixteen countries have ten or more members. Most members are based in the UK (145) and USA (103), although we also have significant numbers of members in countries in Asia (e.g. India 34, Russia 25) and South America (e.g. Argentina 22).

The TWSG has seven different categories of member. These are Core Members; Corresponding Members; BirdLife Partners, Partner Designates, Affiliates and Contacts; Captive breeders; Wetlands International staff and Specialist Group Coordinators; WWT staff; TWSG Coordinators; and Fund-raising contacts. Around half (471) are Core Members - those people with specific expertise in threatened waterfowl conservation. Across all seven member categories, at least 130 of our members are actively engaged in threatened waterfowl conservation.

A total of 445 members are listed in our species experts database. Expert members have been appointed for 58 of the 59 threatened waterfowl taxa. These members have expertise on 74 different taxa, 23 of which have more than ten experts listed. Three species have more than 100 experts (White-headed Duck (133), Ferruginous Duck (108), and Marbled Teal (107)).

**WORK PLAN AND BUDGET**
A triennial work plan and budget for 2002-2004 was produced and submitted to Wetlands International.

**ANNUAL BULLETIN**
Three TWSG News bulletins were published in A5 booklet format: TWSG News 11 (42 pages; 14 news items and 12 features), TWSG 12 (77 pages; 27 news items and 13 features), and TWSG News 13 (81 pages; 15 news items and 20 features).

**WEB SITE**
The TWSG website was developed by WWT volunteer Graham Lawton. This now includes basic information on the group plus all of the group's bulletins (see *www.wwt.org.uk/threatsp/twsg*).

**LIST SERVERS**
Over the course of the triennium, subscribers to the TWSG-Forum list server grew from 79 in 1999 (to 300 in 2000) to 290 in 2001. Traffic remains relatively light with a total of 87 messages in 2000 and 70 in 2001. The list server operates mainly as a means of disseminating to members with around 70% of messages being sent by TWSG Coordinators. List servers are now also operated for Steller's Eider (49 members), Ferruginous Duck (36), Brazilian Merganser (19), White-headed Duck (69), and Ruddy Duck control (17).

**PUBLICATIONS**
The TWSG published a total of 73 scientific papers, reports and popular articles during the triennium.

**CONSERVATION ACTION**
Highlights of the triennium included the development of a species recovery plan for the Brazilian Merganser. This was produced following a conservation workshop in Brazil in September 2000. The workshop was attended by experts from all three Brazilian Merganser range states (Argentina, Brazil, and Paraguay), from Europe and from the United States. It collated background information on the status and distribution, life history, and threats faced by the Brazilian Merganser and drew up generic recommendations for a conservation action plan under the headings of policy and

legislation, species and habitat protection, monitoring and research, public awareness and training, and international collaboration and communication. Conservation recommendations included producing a key site inventory; protecting and producing management plans for key sites; conducting an international survey of Brazilian Mergansers; initiating studies of ecology, breeding behaviour, biology, habitat requirements, population dynamics, dispersal, and genetic variability; conducting a feasibility study into the establishment of a captive flock; and conducting education programmes and forming local interest groups to promote the conservation of the Brazilian Merganser. The workshop recommended that an international recovery team be formed to identify and prioritise conservation needs, and to raise funds for project implementation. *[Editor's Note: The second meeting of the recovery team was held in Brasília in October 2002 – see p. 10]*

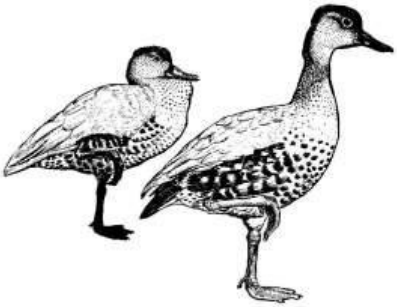
White-headed Duck conservation continues to dominate the group's activities. Ongoing advice was offered to the UK Government on its Ruddy Duck regional control trial (see p. 68). A detailed analysis was conducted on the status and distribution of Ruddy Ducks in the UK over the last thirty years. A research project continues modelling the spread of the Ruddy Duck from the UK under different control scenarios. International activities included the production of a Ruddy Duck eradication strategy for the Council of Europe (Bern Convention) which was circulated to 350 contacts in 70 countries. A European census of Ruddy Duck status and distribution was subsequently conducted, including a questionnaire survey of 45 countries to determine what action has been taken to implement the Ruddy Duck eradication strategy. A Ruddy Duck case study was provided for the IUCN-SSC Invasive Species Specialist Group's Global Invasive Species database. In preparation for the 6th meeting of the Convention on Biological Diversity's Subsidiary Body for Scientific, Technical and Technological Advice (Montreal, 12-16 March 2001), information on Ruddy Ducks was provided to the UK Government and to Piero Genovesi, Chair of the European Section of the Invasive Species Specialist Group. Ruddy Ducks were mentioned as a key example of an invasive bird species in many background SBSTTA documents.

The TWSG gave detailed advice on the LIFE projects for White-headed Ducks carried out in Greece (study of the wintering population at Lake Vistonida, including feeding ecology and the impact of fishing with gill nets) and Corsica (reintroduction project). Andy Green and Violeta Muñoz at Estación Biológica de Doñana, Spain began a genetic study with the following objectives: 1) Develop molecular markers to discriminate hybrids from pure White-headed Ducks; 2) Identify maternal line of hybrids; 3) Compare genetic variability of Ruddy Ducks in Spain, France and Great Britain with those from North America and thus determine the origin of Ruddy Ducks in Spain; 4) Determine the effect of the bottleneck in the Spanish population of White-headed Ducks (comparing genetic variability in samples prior to and after the bottleneck); 5) Determine whether western and eastern White-headed Duck populations are different sub-species; 6) Study genetic variability of captive White-headed Duck populations and assess whether they are viable and healthy for reintroduction projects. For more information on the preliminary results of this project see p.55.

A study of lead poisoning of White-headed Duck and Marbled Teal in Spain was carried out. A study of Marbled Teal ecology within a LIFE project in Valencia was completed, with important new findings on diet, habitat selection etc. Advice was given for the creation of new habitat in El Hondo, with two new ponds flooded in 2001. A workshop to discuss conservation measures and research for Marbled Teal in the West Mediterranean was organized in September 2001. A project researching the distribution and ecology of the Marbled Teal in Morocco was completed (which also collected new data on the distribution of Ferruginous Duck and regionally threatened Ruddy Shelduck *Tadorna ferruginea* and Crested Coot *Fulica cristata*).

Other single-species activities included:

1. Three surveys for White-winged Ducks in North Sumatra province, Sumatra.
2. Research and education work on White-winged Duck in Way Kambas National Park, Sumatra.
3. Surveys of Blue-winged Goose in Ethiopia.
4. Surveys of West Indian Whistling-Ducks in the Turks & Caicos Islands.
5. Surveys of West Indian Whistling-Ducks in St. Kitts-Nevis.
6. A pilot nest box programme for Scaly-sided Merganser in Far-East Russia.
7. Trials of a new design of nasal marker for White-headed Ducks.
8. Publication of the Council of Europe Ferruginous Duck action plan.
9. Participation in research into the distribution and ecology of Ferruginous Duck in Bulgaria (PhD project) and Greece (LIFE project in Amvrakikos).



A workshop to discuss and advance criteria for the designation of Ramsar sites for threatened waterbirds was held at the Wetlands International Specialist Groups Scientific and Technical meeting in Wageningen (4-5 November 2000). The workshop:

- Recommended a holistic approach, involving all continents and all of the 14 waterbird orders recognised by Ramsar as being wetland dependent;
- Identified the products required by Contracting Parties:
  - Species list;
  - Atlas (based on the AEWA Atlas of Anatidae Populations), incorporating:
    - Distribution map;
    - List of sites meeting Ramsar criteria;
    - List of sites currently designated.
- Suggested that a small Ramsar Working Group be established to:
  - Suggest criteria which should be used to designate sites for threatened waterbirds (based on an amended version of the criteria used by the BirdLife IBA programme);
  - Conduct a gap analysis of the above products by region and waterbird family in order to identify products which can be provided to Ramsar Conferences of Parties in the short, medium, and long term.

# WHITE-HEADED DUCKS IN SPAIN IN 2002

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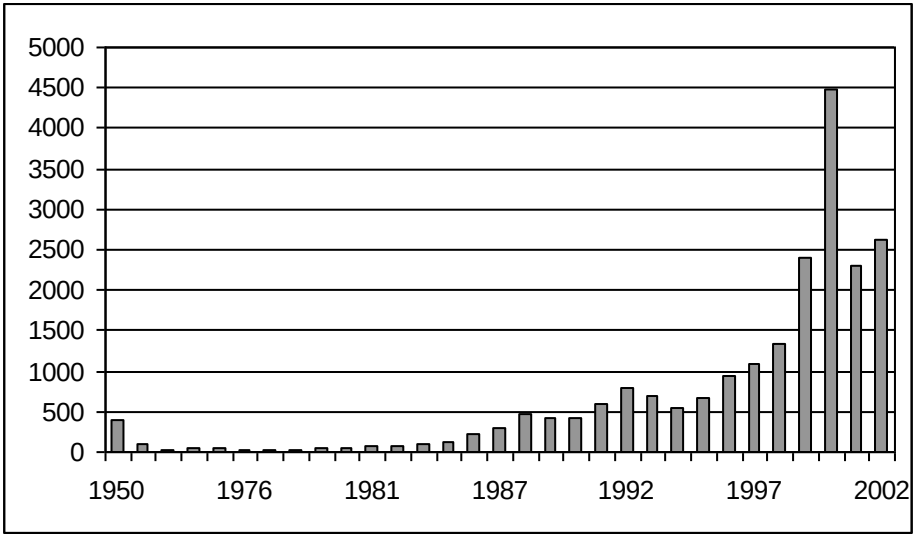
During 2002, the Spanish population of White-headed Ducks peaked at 2,619 birds representing an increase on the previous year's total of 2,300 birds (Figure 1). White-headed Duck were present in 74 wetlands of 15 provinces, including 10 new locations, all of which were in Andalucía. This compares with 78 wetlands in 18 provinces in 2001. The White-headed Duck in Spain now inhabits many artificial wetlands in the provinces of Almería, Cadiz, Córdoba and Sevilla.

Breeding was successful at 21 wetlands in nine provinces in Andalucía, Castilla La Mancha, and Valencia. This compares with 26 wetlands in eight provinces in 2001. No breeding was recorded in Mallorca, although females were present in Huelva and Albacete, in addition to the traditional provinces of Almería, Cádiz, Córdoba, Sevilla, Cuidad Real and Alicante. White-headed Ducks bred for the first time at a new wetland known as "Los Llanos de Bonanza" in Cádiz. Other new sites included Rambla de Morales and Charca de Sotomonte (Almería), Laguna del Donadía (Córdoba) and Clot de Galvain (Alicante).

At least 541 chicks were hatched, 154 more than in 2001, largely due to high breeding success in Alicante and Almería. Breeding productivity at El Hondo and Adra compensated for failures at Medina, Pedro Munoz, Taray and Dehesa de Monreal.

**Figure 1. Peak counts of White-headed Duck in Spain, 1950-2002.**



This breeding success at El Hondo followed a disastrous year in 2001 when only 18 chicks were hatched (compared to over 1,000 in 2000). A total of 114 females were seen to nest successfully in 2002 (a 16% increase on the 98 females in 2001). The first chick hatched on 2 April (at Adra), ten days earlier than in 2001. The last brood hatched at Taraje de Sevilla on 2 August.

Eighteen Ruddy Ducks (ten males and eight females) were shot in Spain in 2002, the highest total for five years (Figure 2). Most of these were juvenile birds. Ruddy Ducks were controlled in six provinces: Alicante (6), Sevilla (4), Alava (3), Almería (2), Barcelona (1) and Cádiz (2). Most Ruddy Ducks were shot in the non-breeding season, in October, December and January (Figure 3).

**Figure 2. Numbers of Ruddy Ducks and Ruddy Duck x White-headed Duck hybrids shot in Spain, 1984-2002.**

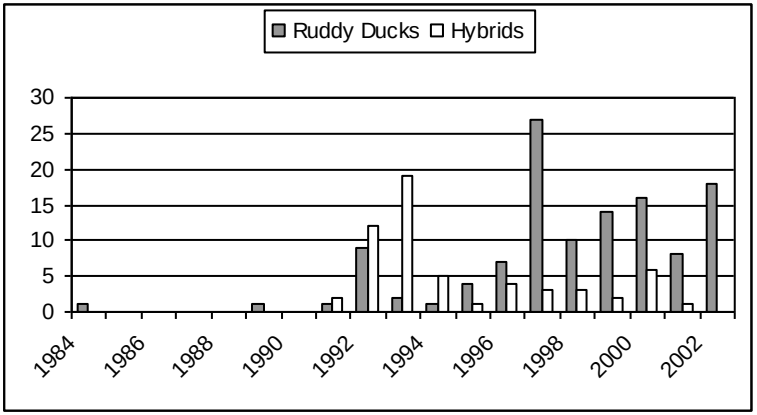
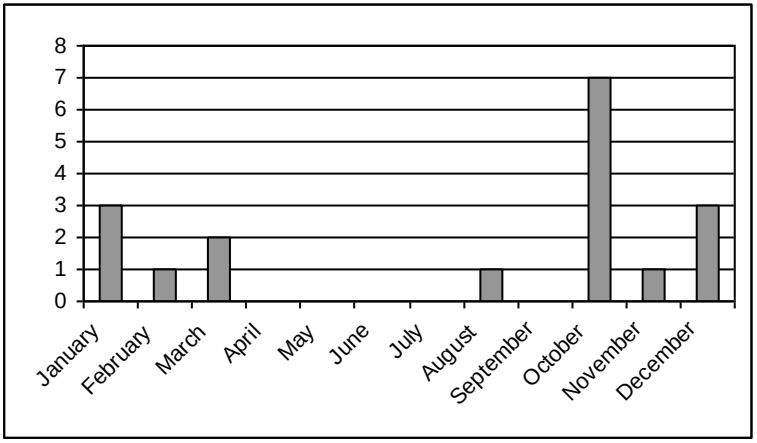



**Figure 3. Seasonal breakdown of Ruddy Ducks shot in Spain in 2002.**



# WINTER STATUS AND DISTRIBUTION OF RUDDY DUCKS IN THE UK

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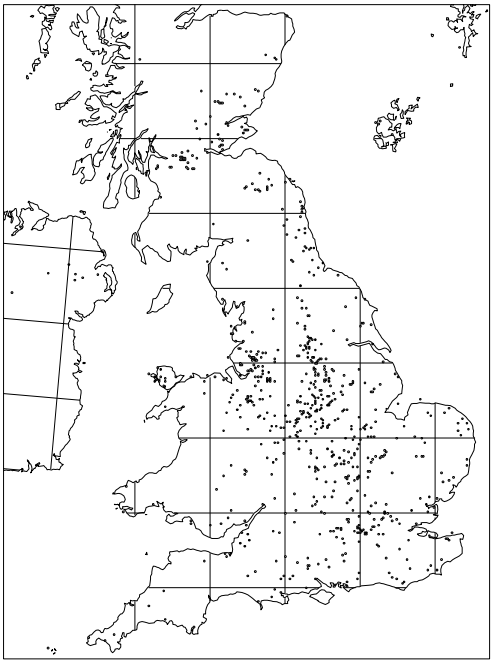
Ruddy Ducks are common and widespread in their native habitat in North America where there is an increasing population of over half a million birds. In the 1940s, Peter Scott imported three pairs of Ruddy Ducks to Slimbridge. Some of their ducklings managed to evade capture for wing-clipping and escaped. These formed a feral population in the UK, which is thought to be the main source of birds emigrating to Spain where they threaten the globally endangered White-headed Duck with extinction through hybridisation and competition. Following research to identify suitable control measures, in 1999 the UK Government embarked on a regional trial of control methods to assess the feasibility of eradicating the Ruddy Duck from the UK (see p. 68).

Since the mid-1960s, Ruddy Duck numbers have increased rapidly in the UK. However, there has been no detailed study of this population increase nor of seasonal, regional, habitat and site-specific variation in numbers. This study therefore aimed to conduct such an analysis for the time period up to the beginning of the regional control trial in order to identify regions of the country where Ruddy Ducks are increasing, stable or decreasing and to determine the most accurate population trend and annual Ruddy Duck population estimates for modelling the feasibility of Ruddy Duck eradication in the UK.

In winter, Ruddy Ducks in the UK congregate on large inland waterbodies, including lakes, reservoirs and gravel pits. The main wintering sites are in the West Midlands and Avon while reservoirs in the East Midlands (Leicestershire, Nottinghamshire and Northamptonshire) have held larger concentrations since the mid-1980s. Other notable wintering flocks occur annually in northern England in Cheshire and Yorkshire, in the south in Hertfordshire, Essex and Surrey, and on Anglesey in North Wales. By January 2000, wintering Ruddy Ducks were widely distributed within the UK, having been recorded on a total of 874 of the sites counted for the Wetland Bird Survey (WeBS) between 1966/67 and 1999/2000. However, the majority of the Ruddy Duck population at this time of year is found on relatively few sites. For example, in January 2000, the top ten sites for Ruddy Ducks held approximately 67% of the wintering population and the top 25 sites 83%. The most important site (Rutland Water, Leicestershire) held 1,345 birds or 27% of the total population.

Between the 1980s and present, there has been continued colonisation of new sites within the Ruddy Duck's core central England population centre, but also increasing colonisation of sites in south-east England, north-east England and south-east Scotland. The number of WeBS sites with Ruddy Duck records has increased from 132 in the 1970s to 478 in the 1980s to 742 in the 1990s (Figure 1). The annual population increase has declined from 39% between 1966/67 and 1979/80, to 8-9% during the 1980s, and to 6-7% subsequently. The total population increased by 91% between 1980 and 1999 and by 71% between 1990 and 1999. Thus the UK Ruddy Duck population is continuing to expand, but at an increasingly slower rate.

**Figure 1. Distribution of WeBS sites at which Ruddy Ducks were recorded during the 1990s. Open circles indicate sites with at least one Ruddy Duck record, filled circles sites which held ≥50 birds.**



The Underhill Index, which accounts for missing counts, suggested a WeBS Ruddy Duck population estimate for January 2000 of 5,946 birds. A Generalised Linear Model, used to smooth the yearly counts plus imputed values, predicted a peak WeBS population of 5,300 birds in 1999/2000 and a five year peak mean for 1995/96-1999/2000 of 4,450 birds. As the population is still increasing, the true winter population size on WeBS sites in January 2000 was likely to be between 5 and 6,000 birds. The numbers of Ruddy Ducks occurring on non-WeBS sites in the UK is unknown, but thought to be relatively low as most of the large inland waterbodies on which Ruddy Ducks concentrate in winter are thought to be counted by WeBS. To produce a correction factor for this source of error, special regional "blitz" surveys would be required in which all sites in a given region are counted and compared with counts on WeBS sites.

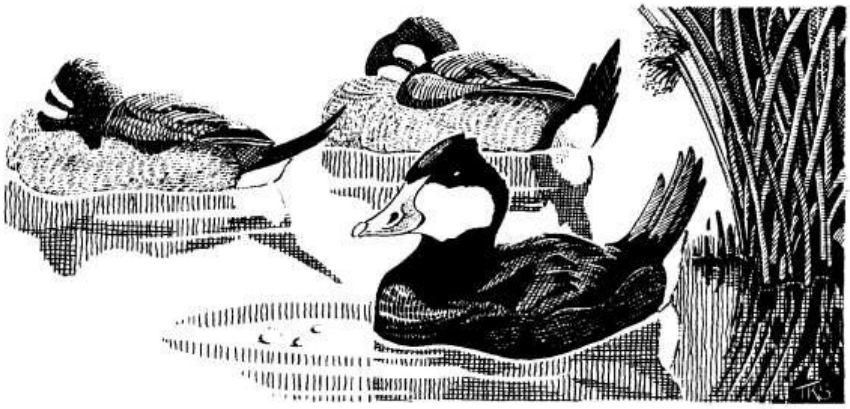
Different habitats have shown significantly different population trends, 1980/81-1999/2000 (Figure 2). Numbers have increased significantly on all habitats except rivers/freshwater marshes (which hold very few birds). Numbers are increasing most on estuarine/coastal sites (29% p.a.), although again the numbers of birds on these sites is still small. There has been a large (19% p.a.) increase in the numbers of Ruddy Ducks on mineral workings and numbers are still increasing on reservoirs, which hold by far the largest numbers of birds.

**Figure 2. Trends in Ruddy Duck numbers in different habitats in the UK, 1980/81-1999/2000. Points are fitted values from a General Linear Model accounting for all missing values.**

Cluster analysis indicated that sites characterised by recent large increases in numbers are found throughout the Ruddy Ducks range, including concentrations in the Ruddy Duck's core Midlands wintering area and in more recently colonised regions (e.g. south-east England, north-east England, and south-east Scotland).

**ACKNOWLEDGEMENTS**

This text is taken from the executive summary of a WWT report to the Central Science Laboratory (full reference: Kershaw, M. & Hughes, B. 2002. The winter status and distribution of Ruddy Ducks *Oxyura jamaicensis* in the UK, 1966/67-1999/2000. WWT Wetlands Advisory Service report to the Central Science Laboratory. 31pp.).



# UK RUDDY DUCK CONTROL TRIAL

**Central Science Laboratory**

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The Ruddy Duck Control Trial was established to determine the feasibility, costs and access requirements necessary to reduce the UK Ruddy Duck population to less than 175 individuals in ten years. This figure was chosen as representing a 95% reduction in the estimated population of 3,500 at the time of the decision to proceed with regional trials. It was decided at that time that data from regional trials would not provide sufficient information on the population dynamics of Ruddy Ducks at very low densities to allow any determination of the feasibility, costs and access requirements for complete eradication.

Three regions were selected to represent different challenges representative of the national situation. On Anglesey and in the Western Midlands control took place all year round while in Fife it was limited to the autumn and early winter. Limited control also took place on waters in Avon, Leicestershire, Northamptonshire (as a result of the need to test control methods on large wintering sites) and Gloucestershire (where breeding season traps were tested).

The UK Ruddy Duck population in January 2000 was estimated at 5,946 birds, with a 95% confidence interval from 5,407 to 6,733 (Kershaw & Hughes 2002, see p. 64). A total of 2,651 Ruddy Ducks were culled between 16 April 1999 and 10 May 2002. The total number of birds removed consisted of 751 females, 1,137 males and 763 immature birds.

On Anglesey the aim of the trial was to reduce the breeding population by the maximum possible but by a minimum of 70% within three years. The original breeding population of 200 birds was reduced by over 70% within the first twelve months of the trial and by an estimated 93% within sixteen months.

In the Western Midlands the aim was to reduce the immediate pre-breeding population by the maximum amount possible. Counts on a sub-set of 17 sites showed reductions of 28% in the first twelve months. Counts on a sub-set of 23 sites showed a further 54% reduction in the second twelve months of the trial. These figures represent an overall reduction of 66% in the first two years of the trial.

The aim of the trial in Fife was to kill the maximum number of the post-breeding (autumn) population. A total of 216 Ruddy Ducks were removed in Fife during the trial (33 in 1999, 163 in 2000, and 20 in 2001).

Permission to carry out control of Ruddy Ducks was sought on a voluntary basis for a total of 153 sites. The 153 sites had a total of 193 owners/occupiers which had to be approached. Of the 193 owners and occupiers contacted, 58% gave permission for the control of Ruddy Ducks. Permission to carry out control was granted for 52% of the 153 sites. Control by shooting was allowed on 48% of all sites, with control by trapping on a further 4%.

Effective control by shooting proved feasible on breeding sites and on a range of sizes of post-breeding and wintering sites. On average 47% of the Ruddy Ducks present on breeding sites were killed per visit with a staff input of 1.98 hours on site per bird killed. On post-breeding and wintering sites ≤1km$^2$. in extent, 54% of birds present were shot per visit on average, with a staff input on site of 1.1 hours per bird killed. On larger waters the percentage of birds killed was reduced (mean 19%) but the staff input on site was only 0.8 hours per bird.

Three traps were constructed at three post-breeding/wintering sites and fourteen traps on three breeding sites. Approximately 900 hours of staff effort in construction, maintenance and driving of ducks during the autumn and winter failed to result in any captures during this period. During the breeding season approximately 750 hours

of staff effort in construction and checking of traps resulted in a total of 17 Ruddy Ducks (five females and 12 males) being caught on one of the three sites. The results of this work suggest that post-breeding and winter trapping is ineffective with this species, but that breeding season trapping, although much less efficient than shooting, may be effective on certain sites.

The effectiveness of artificial decoys and male display calls was tested during summer 2000. The results suggest that only use of the call is effective in attracting birds within shotgun range.

A stochastic Monte Carlo simulation model was constructed to project the national Ruddy Duck population from January 2000 under a variety of control strategies. Three variables were included: efficacy per person (by how much each member of staff could reduce the national population by per year), numbers of staff, and changes in Ruddy Duck population growth rate.

There could be as many as 1,000 breeding sites nationally, but it is access to forty or so key post-breeding and wintering sites which will be critical to the acceptable progress of an eradication scheme. If this is available, modelling suggests that there is an 80% certainty that the population can be reduced to fewer than 175 birds in between four and six years, at a cost of between £3.6m and £5.4m.

**ACKNOWLEDGEMENTS**

This text is the executive summary of a report by the Central Science Laboratory to the UK Department for the Environment, Food and Rural Affairs (full reference: Central Science Laboratory. 2002. UK Ruddy Duck Control Trial Final Report. Report to the UK Department of the Environment, Food and Rural Affairs by the Central Science Laboratory. Bristol: DEFRA). This information is UK Crown copyright. Free copies of the full report are available from *www.defra.gov.uk/wildlifecountryside/scientific/ruddy/ruddy1/index.htm* or from DEFRA publications (Tel: +44 (0)8459 556000 quoting Ref. PB6997).

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# RUDDY DUCK CONTROL IN EUROPE AND NORTH AFRICA

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## INTRODUCTION

The following information has been compiled from two sources of information. Firstly, from the 2002 Bern Convention report on the implementation of recommendations on the conservation of birds (document T-PVS/Inf (2002) 22). Secondly, from a European census of Ruddy Duck status and distribution conducted by Wetlands International in 2000. This included a questionnaire survey of 45 countries of action taken to implement the Council of Europe Ruddy Duck Eradication Strategy.

## OVERVIEW

The number of countries taking action against Ruddy Ducks has increased significantly in recent years. By 2002, at least 12 countries in the Western Palearctic (excluding the UK) had taken some action to control Ruddy Ducks (Belgium, France, Hungary, Iceland, Ireland, Italy, Morocco, Netherlands, Portugal, Spain, Sweden, Switzerland). This compares with only six countries in 1999. At least 280 Ruddy Ducks and hybrids have now been controlled in five countries excluding the UK (France, Iceland, Morocco, Portugal, and Spain) and a further two have indicated that attempts will be made to shoot birds if they occur (Hungary, Italy). Concerted eradication programmes are in operation in four countries (France, Portugal, Spain, and the UK) and one is planned in Morocco. In September 2001, the Dutch government stated its intention to begin a control programme in The Netherlands to prevent Ruddy Ducks becoming established as a regular breeding species.

## COUNTRY ACCOUNTS

### Belgium

There are 10-20 records of Ruddy Ducks annually in Belgium, mainly relating to wintering birds in Flanders (Beck *et al*. 2002). There have been no recent breeding records and only four in total (all in Wallonia before 1993). Moves are being made to address the Ruddy Duck issue in Belgium. In November 2002, the Institute of Nature Conservation produced a report on the management of naturalised waterbirds in Flanders. This recommended that:

1. All captive Ruddy Ducks should be individually marked and the numbers and locations of all birds should be recorded in a centralised database.
2. Trade should be discouraged and a 'list' system established for governing keeping and trade. A similar list has already been produced for mammals by the Belgian Federal Ministry of Social Affairs, Public Health and Environment. This listing system should suggest that species should not be kept if they a) could survive into the wild after escape and become an ecological threat; and b) should not be aggressive and/or dangerous, or be a danger to human health.

### France

*Wintering Birds*

There have been 30-80 wintering birds at Lac de Grand Lieu in northern France since 1995/96. The number of Ruddy Ducks occurring in France are still increasing annually (Table 1).

*Breeding Birds*

Numbers of breeding birds are still very low with Ruddy Duck breeding records from only three sites between 1996 and 2000.

**Table 1. Records of Ruddy Duck in France (data supplied by Philippe Dubois).**

| Year | No. Records | No. Birds | No. Breeding Pairs (chicks) |
|---|---|---|---|
| 1981 | 2 | 3 | |
| 1982 | 8 | 14 | |
| 1983 | 4 | 21 | |
| 1984 | 3 | 15 | |

| | | | |
|---|---|---|---|
| 1985 | 9 | 14 | |
| 1986 | 2 | 2 | |
| 1987 | 3 | 3 | |
| 1988 | 8 | 10 | 2 (4) |
| 1989 | 6 | 9 | |
| 1990 | 5 | 5 | |
| 1991 | 11 | 12 | |
| 1992 | 10 | 20 | |
| 1993 | 9 | 10 | |
| 1994 | 17 | 28 | |
| 1995 | 26 | 55 | |
| 1996 | 31 | 84 | |
| 1997 | 19 | 34 | 2 (9+) |
| 1998 | 23 | 107 | 4-8 (32) |
| 1999 | 29 | 131 | 5-9 (26) |
| 2000 | 39 | 136 | 2+ (11) |

*Ruddy Duck Control*
A Ruddy Duck Working Group was established in 1994 and a national eradication strategy is now in place. So far, a total of 113 birds have been controlled (Table 2).

**Table 2. Numbers of Ruddy Ducks controlled in France (total = 113).**

| Year | Total |
|---|---|
| 1997 | 7 |
| 1998 | 6 |
| 1999 | 25 |
| 2000 | 37 |
| 2002 | 6 |
| Total | 113 |

**Hungary**
Although there are only a few records of Ruddy Ducks in Hungary, the Hungarian Government has undertaken to control birds which attempt to breed.

**Iceland**
Ruddy Duck numbers in Iceland are monitored closely (very few records in recent years). In September 2002, the Icelandic Institute of Natural History shot three Ruddy Ducks. It is illegal to keep Ruddy Ducks in captivity in Iceland.

**Ireland**
Numbers of Ruddy Ducks are thought to be increasing in Ireland. This has prompted the Irish Government to add the Ruddy Duck to the list of huntable species, with an open season from 1st September to 31st January.

**Italy**
The Italian Government conservation body Istituto Nazionale per la Fauna Selvatica is working with local administrations to try to control any Ruddy Ducks which appear in Italy.

**Morocco**
Ruddy Ducks have been resident in small numbers (up to 17) in Morocco since 1992, breeding was first recorded in 1994 and hybrids have been observed annually since 1999. Since 1994, Spanish conservation bodies have maintained regular contact with the Moroccan government. Two Ruddy Ducks were shot in Morocco in 1994, Spain has supported the production of an information leaflet on Ruddy Ducks in Morocco, and a series of bilateral meetings have been held, although no further control activities have yet been undertaken.

In October 2002, the Moroccan Ministère des Eaux et Forêts requested that the IUCN Centre for Mediterranean Cooperation assist in the design and implementation of an appropriate control strategy for Ruddy Ducks and hybrids as part of its commitments under the Bern Convention. A workshop on this issue, involving sharing the experience of Ruddy Duck control teams from Morocco, France, Spain and the UK, is therefore planned for October 2003.

**The Netherlands**
*Wintering Birds*
The number of wintering records of Ruddy Ducks in The Netherlands has been stable for the last four years for which data are available (Table 3).

**Table 3. Numbers of Ruddy Ducks wintering in The Netherlands, 1996-1999.**

| Year | No. of Occupied 5km squares | No. of Birds |
|---|---|---|
| 1996 | 27 | 50 |
| 1997 | 10 | 19 |
| 1998 | 27 | 43 |
| 1999 | 27 | 44 |

*Breeding Birds*
Most birds disperse in spring and are thought to return to the UK as there are only 1-2 breeding records per year in The Netherlands.

*Ruddy Duck Control*
In 1996, the Ruddy Duck was placed under Article 54 of the Dutch Hunting Law which permits Ruddy Duck control, although no birds have yet been shot. In September 2001, the Dutch government decided to start the process of Ruddy Duck control. Initial actions are: consultation with reserve managers and provincial governments concerning Ruddy Duck shooting; and starting a consultation process with keepers of waterfowl collections on measures to control Ruddy Ducks. The aim of the control programme in The Netherlands will be to prevent the species becoming established as a regular breeding species.

**Portugal**
A national eradication strategy is in place and a control team operational. One Ruddy Duck and two hybrids were shot between 1995 and 2000.

**Spain**
Spain has a national White-headed Duck Working Group, a national eradication strategy is in place and a control team is operational. At least 130 pure Ruddy Ducks and 59 hybrids have been controlled to date.

**Sweden**
In Sweden, a change in legislation in July 2001 means the Ruddy Duck can now be shot all year round and their nests destroyed. The Ruddy Duck is the only bird species in Sweden that can be hunted irrespective of situation in which it occurs.

**Switzerland**
Although Ruddy Ducks are not yet controlled in Switzerland, the Swiss Ornithological Institute and SVS – BirdLife Switzerland have produced a proposed strategy on introduced bird species. This was to be discussed with the federal authorities in 2002. It is proposed that all Ruddy Ducks occurring in Switzerland should be killed by hunting guards of the Cantons, but that other waterbirds, especially on nationally and internationally important sites and IBAs, should not be disturbed.

**ACKNOWLEDGEMENTS**
Many thanks to Philippe Dubois and Luc Barbier for providing records of Ruddy Ducks in France and to Olivier Beck for providing an English translation of his account of Ruddy Ducks in Belgium. Thanks also to all contributors to the Wetlands International European Ruddy Duck survey.

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# WHITE-HEADED DUCK BREEDING AND REINTRODUCTION PROGRAMME IN HUNGARY, 1982-1992

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## INTRODUCTION

The Hungarian Ornithological Society, in collaboration with the Wildfowl & Wetlands Trust, launched a White-headed Duck captive breeding and reintroduction programme in 1982. It was the first attempt to reintroduce this endangered species to an area from where it had previously become extinct. Unfortunately, problems arose both with the breeding programme and the release of the birds, so a self-sustaining population could not be attained. The programme was stopped in 1992. Most of the available literature (Haraszty 1984, 1986; Molnár 1987, 1990; MME *et al*. Undated; Andrési 2002) does not provide a detailed analysis of the causes of the failure. One exception is Tolnai (1991), but this report was not published and some of its conclusions need revision. The results of this new analysis may be helpful when planning other reintroductions.

## HISTORIC STATUS OF THE WHITE-HEADED DUCK IN HUNGARY

Hungary was on the periphery of the White-headed Duck's former breeding range with only a small and fluctuating population, which probably never exceeded 100 birds (Schmidt 1967; Anstey 1989). The last breeding record was in 1961 at Lake Kondor (Molnár 1987). The causes of the population fluctuations and the subsequent local extinction are unknown. According to Anstey (1989), the fate of the White-headed Duck in Hungary was "largely influenced by the population dynamics of the species in the main breeding areas of the (former) USSR". Decline of the eastern population, habitat loss due to climate change and drainage, hunting and egg collection were probably the factors driving the species to local extinction (Schmidt 1967; Anstey 1989).

## FÜLÖPHÁZA BREEDING PROGRAMME

The White-headed Duck breeding programme began in 1982, when Hungarian aviculturalists were trained at Slimbridge. Between 1983 and 1986, a White-headed Duck breeding centre was established at Fülöpháza. The site is situated next to Lake Kondor, where the last breeding of the species was recorded in 1961 (Molnár 1987). The centre consisted of seven ponds with a total surface area of 1,300$m^2$. The ponds were lined with rubber sheets and covered with netting. Winter facilities were also built with a direct link to the outside ponds (Haraszty 1984). However, the birds did not use the heated buildings, and preferred to stay outside despite the low temperatures, where it was difficult to maintain an ice-free water surface, even when water was constantly circulated (Molnár *pers. comm*. 2002). These problems could have been avoided if the breeding centre had been built next to a thermal spring, which are relatively common in Hungary.

Between 1984 and 1988, 162 eggs were transported from England to Fülöpháza and then artificially incubated (Tolnai 1991). The hatched birds started to breed in 1985 although no eggs hatched in that year (Haraszty 1986). During the first two years, when all the birds were kept together on the same pond, aggression was a significant problem. From 1987, birds were therefore separated into trios of one male and two females for the courtship and nesting seasons. Aggression subsequently decreased and breeding success improved (Tolnai 1991). Hatching success peaked at 52% in 1988 (Figure 1), but the 60% hatching success normally recorded at Slimbridge (Hughes *pers. comm*. 2002) was not reached during the Hungarian programme.

Hatching success started to decline in 1989, and no eggs were subsequently

hatched. No data are available for 1991, because some birds were transferred to Budapest Zoo. In 1992, the remaining birds were transferred to Budapest, representing the end of the Hungarian White-headed Duck breeding programme. The White-headed Ducks did not breed at Budapest Zoo and none survive today (Molnár *pers. comm*. 2002).

The hatching success during the last two years decreased mainly because the proportion of damaged and abandoned eggs increased (Figure 2). This increase had three causes:

- Abnormal behaviour: nest-desertion, nest-parasitism and early abandonment of ducklings;
- Higher aggression, because birds were not segregated for the 1990 breeding season;
- Egg predation by rats (Molnár *pers. comm*. 2002).

The proportion of infertile / addled eggs was high throughout the breeding programme (Figure 3).

**Figure 1. Hatching success of White-headed Ducks at Fülöpháza, 1986-1990.**

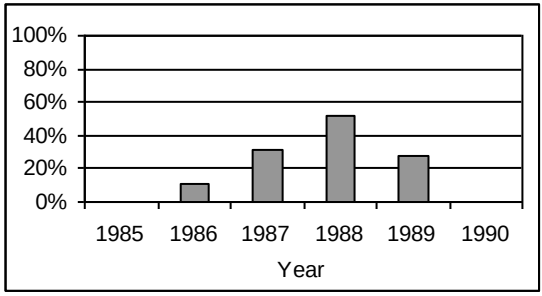



**Figure 2. Percentage of damaged or abandoned White-headed Duck eggs at Fülöpháza, 1986-1990.**

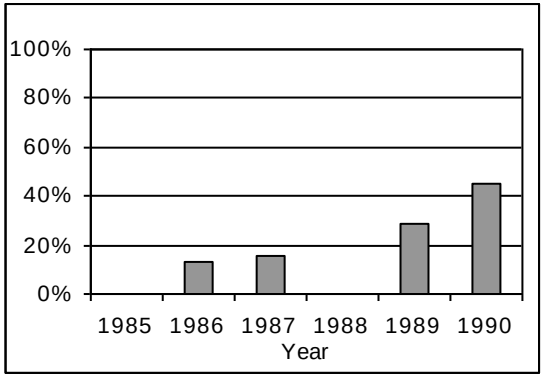
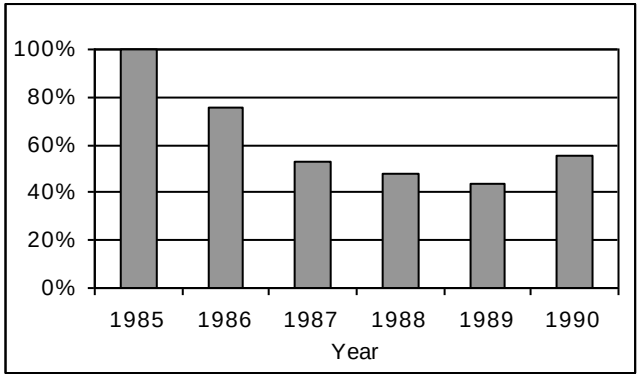


**Figure 3. Percentage of infertile / addled White-headed Duck eggs at Fülöpháza, 1986-1990.**




Several factors may have caused the behavioural aberrations and the high proportion of infertile eggs:

1. Inadequate food. According to the experience at Slimbridge, the menu at Fülöpháza was diverse enough to avoid this problem (Hughes *pers. comm.* 2002).
2. Disease. Negative results of several veterinary visits and toxicological analyses suggests disease was not the cause of the low breeding success.
3. Inbreeding depression. The captive White-headed Duck populations are descendants of only three founder pairs captured in 1968, so they could be threatened by inbreeding depression. The birds at Fülöpháza were not marked individually (Molnár *pers. comm.* 2001), so it was impossible to apply methods to preserve genetic variability. At Slimbridge, inbreeding depression was not apparent even though the Slimbridge population has the same origin (Hughes *pers. comm*. 2002).

The reasons for the low breeding success therefore remain unknown.

**REINTRODUCTION**

A total of 52 birds were released between 1986 and 1988 (Table 1). No information is available on the fourth and last release in 1991.

**Table 1. White-headed Duck releases in Hungary, 1986-1988.**

| Date | Site | F | M | Total |
|---|---|---|---|---|
| 7.6.86 | Lake Péteri, Pálmonostora | 5 | 5 | 10 |
| 22.5.87 | Lake Péteri, Pálmonostora | 7 | 6 | 13 |
| 16.4.88 | Lake Kondor, Fülöpháza | 17 | 12 | 29 |
| Total | | 29 | 23 | 52 |

The releases were not successful. Seven birds from the third release were recaptured after three months when the lake dried out. Three or four birds dispersed to a neighbouring hunting area, from where they disappeared at the beginning of the hunting season. I believe they had been shot illegally. Most of the released birds disappeared within a period of two months. No information is available on their subsequent fate (Tolnai 1991).

Obviously the release sites were not suitable. Lake Péteri was not a past breeding site for White-headed Duck and, moreover, it is a fishing area with human disturbance. Lake Kondor had been largely dry for several years before the reintroduction, and there may not have

been enough food for a species preferring eutrophic, productive habitats (Anstey 1989; Green & Hughes 2001). This highlights the importance of detailed studies on release sites and environmental evaluation before the start of costly reintroduction programmes. Factors which cause the initial extinction also need to have been rectified.

Experience from Mallorca suggests that acclimatisation in a fenced area at the release site improves the success of White-headed Duck reintroduction (Brunner & Andreotti 2001). In Hungary, this method was not used due to shortage of funds. The Hungarian White-headed Duck reintroduction programme was the first project of this kind, and when it was planned, no previous experience was available.

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# FOOD AND FEEDING HABITAT OF THE WHITE-WINGED DUCK IN ASSAM

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A study of White-winged Duck in Assam since the 1990s has yielded vital biological information about the species (Talukdar 1994, 1995, 1999). Food habits of adult White-winged Ducks appear to be different between the sexes and seasonally driven. The duck feeds throughout the day in shady wetlands, however, vigorous feeding occurs in late evening and early morning.

White-winged Duck take a wide spectrum of plant and animal material (Table 1), typically by pecking or dabbling at foods on the surface. Subsurface and bottom feeding are very rare. Hence, White-winged Ducks tend to use areas of shallow water for foraging. Shallow wetlands (15-35cm deep) frequented by wild elephants are one of the White-winged Duck's main feeding habitats. Elephant dung around wetland margins, creates a nutrient rich micro-habitat with high densities of phyto- and zooplankton, such as *Sirogonium* sp., *Spirogyra* sp., *Euglena* sp., *Melosira* sp., *Centropyxis* sp., *Arcella* sp., *Brachionus* sp., and *Nauplius* sp.. This micro-habitat attracts invertebrates, such as aquatic insects, molluscs, and earthworms.

Dropping analysis of White-winged Duck at the salt lick in Nameri National Park suggested their diet contained 75% molluscs and 12% fibre. However, this is contradicted by visual observations during winter, which suggest that nearly 70% of their diet is plant matter, and 30% invertebrates. Between the pre-laying and egg-laying periods, female White-winged Ducks increased the amount of invertebrates in their diet from 30% to around 70%. During post-laying, invertebrate intake declined and the intake of plant matter increased. Male White-winged Duck generally take 60-70% plant material and 30-40% invertebrates.

**Table 1. Food items of White-winged Duck in India. Food items identified from field observations of wild birds and food preferences of captive birds.**

| Group | Species |
|---|---|
| Fish | *Brachydanio rerio, Puntius ticto, Esomus danricus, Mystus tengra, Channa gachua, Parluciosoma daniconius, Danio devario* |
| Molluscs | *Pila globusa, Lymnea columella, Bellamya bengalensis, Brotia costula, Indoplanorbis exustus, Brotia variabilis, Radiotula pasisoma, Bithynia* sp., *Vivipera bengalensis, Lamellidens marginalis, Lamelladinius corrionus, Terebia* sp. |
| Insects | *Culex* sp., *Nymphula* sp., *Lethcerus indicus, Diplonychus annulatum, Gerris* sp., *Canthydrus* sp. |
| Other Invertebrates | *Cypris* sp., *Branchiura* sp., *Aelosoma* sp., *Nais* sp., Crabs |
| Plants | *Castanopsis* sp., *Pistia strafiotes, Azolla pinnata, Lemna* sp., Rice |

White-winged Ducks occur in dense forest and scrub wetlands where birds generally feed along the shore in water 80-140cm deep. White-winged Ducks will feed in deeper water (140-400cm), but in doing so they use just the top 25-35cm of water. Most feeding sites are <1m depth, sometimes only 20cm deep in Nameri National Park. Most birds occur on streams with a flow of <3km/hour.

White-winged Ducks in Assam occur in habitats with trees or shrubs overhanging water, in flooded woody vegetation, or in a combination of these habitat types. A ratio of 40-70% cover to 30-60% open water is preferred in breeding habitats, compared to 60-75% cover and 25-40% open water during brood-rearing. Birds are often found associated with emergent macrophytes, including *Hymanachanae* sp. and shrubs which form a dense canopy *ca*. 50cm. above the water.

The community composition in wetlands frequented by White-winged Ducks is as follows:

**Emergent macrophytes**. Erect taxa include *Cyperus procerus, Typha angustata, Scirpus grossus, Eleocharis* sp.*, Monochoria* sp.*, Polygonum barbatum,* and *Aeschenomene indica*. Floating taxa include *Ipomea* sp.*, Leersia hexandria, Paspalum* sp.*, Hygrorhiza aristata,* and *Commelina longifolia*.

**Floating Macrophytes** include *Nymphaea* sp.*, Nelumbo* sp.*, Pistia stratiotes, Spirodella* sp.*, Lemna* sp.*,* and *Azolla pinnata*.

**Submerged macrophytes** (growing in a water depth of 2-5m) include *Hydrilla verticillata, Vallisneria spiralis, Ceratophyllum* sp.*, Chara* sp.*, Nitella* sp.*,* and *Potamogeton crispus*.

**Macrophyte-associated fauna** mostly comprise ubiquitous molluscs, nymphs, larvae and adult insects, annelids, ostracods, decapods, and arachnids.

**Molluscs** include gastropods, such as *Pila globusa, Bellamya bengalensis, Lymnea columella,* and *Indoplanorbis exustus* and bivalves, such as *Lamellidens* sp.

**Insects**. Commonly observed insects include *Diplonychus annulatum, Ranatra* sp.*, Lethcerus indicus, Gerris* sp.*, Micronecta* sp.*, Culex* sp.*, Canthydrus* sp.*, Nymphula* sp.*,* and *Leptocera* sp.

**Ostracods**. Commonly occurring ostracods include *Cypris* sp.*,* and *Heterocypris* sp.

**Decapods**. Mainly *Carcinus* sp.*, Macrobrachium rosenbergii, Penaeus indicus* and *Seylla* sp.

**Annelids**. Annelids are less common and mostly represented by Oligochaetes, and Polychaetes belong to genera *Nais, Dero, Aelosoma, Chaetogaster,* and *Branchiura*.

Field observations suggested that there was no significant niche overlap in nesting and roosting trees between White-winged Duck and other cavity nesting birds. However, niche overlap in feeding habitat was observed between the White-winged Duck and Lesser Tree Duck: 63% niche overlap in pre-breeding period, 49% during breeding period and 58% during the post breeding period.

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# STATUS OF WHITE-WINGED DUCK IN BANGLADESH

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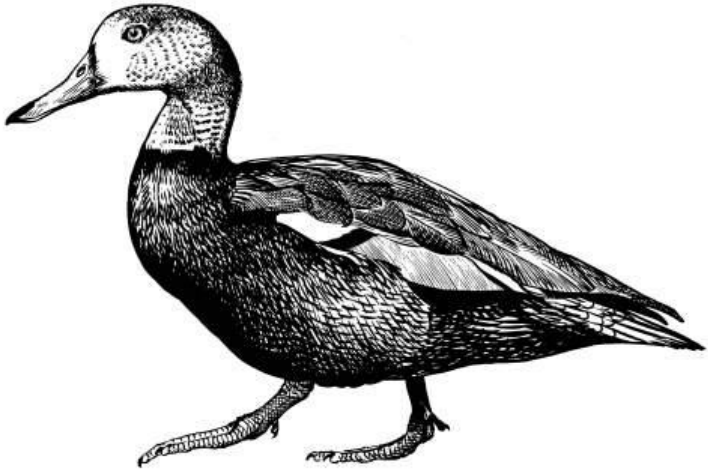
The White-winged Duck is one of the most highly threatened birds in the world, found only in some areas of the Oriental Region. It has been identified as a globally Endangered species (IUCN 2002), but its status in Bangladesh is even worse, being identified as a Critically Endangered species (IUCN-Bangladesh 2000). In Bangladesh, the common names of this bird are Jarbo Hans, Badi Hans or Daw Hans. 'Jarbo Hans' means 'forest-dwelling duck' in Chakma tribal language, and typically indicates the bird's association with the forest.

Mr. G. Mountfort, the Founder Trustee of the World Wide Fund for Nature, mounted an expedition to Bangladesh (then East Pakistan) during 1966-1967. Based on his experience he wrote the book The Vanishing Jungle (Mountfort 1969). In this he mentioned 'the extremely rare White-winged Wood Duck, which used to be found here [Pablakhali Wildlife Sanctuary] before the flooding [due to the construction of a dam in early 1960s for the Kaptai Hydro-electricity Project], has now vanished'. Pablakhali WS (23°08′N, 92°16′E) is an area of 42,087km$^2$ in the south-eastern hilly region of Bangladesh. The Tropic of Cancer passes through the Sanctuary.

Based on the information of a hunted specimen from Pablakhali WS in the early 1970s, Prof. K.Z. Husain reported that the species still existed there. The University of Dhaka immediately began a project to survey the population, feeding and roosting grounds, and to study movements, daily activities, and breeding activities of this threatened bird. The survey was conducted during 1976-1979 and a total of 28 individuals were identified (Husain & Haque 1981).



The species was mainly sighted in the Mahilla, Sarwatoli, Harinachhara, Churakhali and Kalapaguizza areas of Pablakhali WS (M.N. Haque *pers. comm*.). This project revealed that the White-winged Duck prefers to feed in wetlands in undisturbed evergreen forests. They roosted both on wetlands and in evergreen trees. Nests were found in tree-holes, and based on the sightings of large ducklings in mid-July, it was assumed that breeding activities started much earlier than was previously thought (Husain 1977).

Based on field experience, Khan (1982) estimated the presence of 40 White-winged Ducks in Pablakhali WS. However, he did not find any during his visit there in August 2000 (M.A.R. Khan *pers. comm*.) and in consequence many Bangladeshi experts were afraid the species might have gone extinct in Bangladesh.

In order to evaluate the recent status of this species, myself and my photographer friend (Ahsanul Haque Khokan) conducted a brief survey in October 2002. Political disturbances in the region make any survey difficult and, to some extent, risky. We visited different parts of Pablakhali WS and interviewed the indigenous Chakma tribal people, showing them pictures of this bird. During this survey we found that the natural evergreen forests have been heavily destroyed due to illegal logging, shifting cultivation and the creation of teak plantations. However, some patchy habitats, especially towards the international boundary in the east, still have the potential to support a small population of White-winged Duck. Although we did not see any White-winged Ducks, the interviews suggested the species still occurs in the Sarwatoli and Massalong areas of the Sanctuary. It should be noted that, there was no previous reports of this bird in Massalong. This evidence indicates that during 1970s-1980s, the total population could have been higher than estimated because there was much suitable habitat in unsurveyed areas. Suitable habitats also persist outside the Sanctuary (to the south) where the species might still exist. Detailed surveys are required to determine the actual status and distribution of this species in Bangladesh. The remaining evergreen forests, together with the wetlands inside them, require strict conservation in order to protect the remaining White-winged Ducks in Bangladesh.

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# MIDWAY ATOLL POSSIBLE TRANSLOCATION SITE FOR LAYSAN DUCK

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Island ecosystems have undergone catastrophic species losses, largely due to alien species introductions. Rats, in particular, appear in Hawaii's subfossil records as the ground nesting birds disappear (Burney *et al*. 2001). The Laysan Duck was previously common and widespread in the Hawaiian archipelago, but is now restricted to the small (4km$^2$), remote, rat-free atoll, Laysan National Wildlife Refuge (NWR). The Laysan Duck is especially vulnerable to extinction because of its restricted range and small population size. Although the species breeds successfully in some years (e.g. 2000, 2003), an additional population is needed as insurance against the high risks to the isolated population. Establishment of additional populations was identified as a priority by the US Fish & Wildlife Service in the species' revised Recovery Plan (USFWS 2003). Since Laysan Ducks do not disperse from Laysan, translocation is a conservation tool that may reduce threats to the species.

Recent research on the ecology of Laysan Duck emphasized the limited carrying capacity of Laysan Island and the stochastic risk factors, such as hurricanes, droughts, disease, and accidental predator introductions, likely to cause its extinction. The habitat requirements for the Laysan Duck include dense cover, abundant prey base, no mammalian ground predators, and fresh water for ducklings (Reynolds 2002). An informal ranking process by wildlife biologists and managers interested in Laysan Duck conservation ranked Midway Atoll NWR as the best site for an experimental translocation. Midway meets three of the four habitat requirements, but requires enhancement and creation of freshwater resources for the ducks (Reynolds & Kozar 2000). Rats were introduced to Midway Atoll during World War II, but were eradicated from the Refuge in 1996. Visitors to Midway Atoll would have the opportunity to view Laysan Duck, currently inaccessible on the more remote, restricted, and fragile Laysan Island NWR. The risk of extinction would be greatly reduced for this species, because catastrophic events are unlikely to affect both islands simultaneously.

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# 2004 RED LIST CHANGES FOR WATERFOWL

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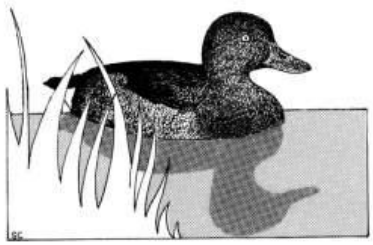
## INTRODUCTION

BirdLife International are reviewing potential category changes for the 2004 IUCN Red List. To facilitate this process, BirdLife established web-based discussion forums (the threatened waterfowl forum is located at *http://208.185.149.227/WebX?13@213.Q5aNaJ7eaBm.0@.2cba28ae*). During a three month consultation period, changes in threatened status were proposed for seven species of waterfowl (Orinoco Goose, Madagascar Pochard, Laysan Duck, Chubut Steamerduck, Flightless Steamerduck, Torrent Duck, and Baikal Teal). Suggested changes were upheld for three species (Laysan Duck, Baikal Teal and Madagascar Pochard), the remainder requiring further evidence to support changes in status. The cases for status change for all seven species are presented below.

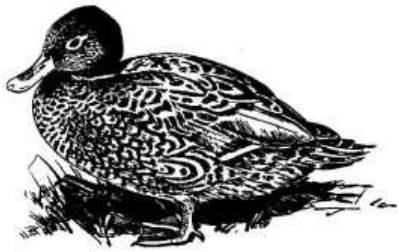
### Madagascar Pochard



*Proposal:* List as Critically Endangered (Possibly Extinct) *[Editor's Note: "Possibly Extinct " is not an official IUCN category, but a tag developed by BirdLife for analytical and information purposes. It is used to highlight species likely to be extinct, but for which there is a small chance that they may still be extant, hence they should not be listed as Extinct until local or unconfirmed reports have been discounted, and adequate surveys have failed to find the species. The official IUCN listing for these species will remain Critical]*
*Rationale:* The Madagascar Pochard was last seen in 1960 and 1970 (unconfirmed record) with a single male captured in 1991. Intensive searches and publicity campaigns failed to produce any records during 1989-1990 and 1993-1994.
*Decision:* List as Possibly Extinct.

### Laysan Duck

*Proposal:* Upgrade to Critical.
*Rationale:* The Laysan Duck is currently classified as Vulnerable (A1a,c,e; D1; D2) because it has sustained a very rapid population reduction owing to food shortages induced by drought and introduced taxa. Although it has a tiny range (Extent of Occurrence = 4km$^2$), to trigger the B criterion at the Critical level the range must be fragmented, continuing to decline, or there needs to be extreme fluctuations in range or numbers. The first two of these do not apply for this species. In the assessment in 2000, it was recognised that the population apparently fluctuates, but some of this was believed to be attributable to differing methods and seasons of censuses, as some birds can be concealed in vegetation, especially during the breeding season. It was recognised that if fluctuations proved to be extreme, the species would qualify as Critical under criterion B (B1civ in the revised criteria). However, new information (M. Reynolds & G. Ritchotte *in litt*. 2002) suggests that the population has fluctuated between 7 and 827 adults in the last century. Poor monitoring during the 1993 drought makes estimates difficult, but post-hoc analysis indicated that the population dropped to 82-122 adults from a peak of 827 birds prior to the drought. This suggests that fluctuations can indeed be extreme, and that there is a strong argument for upgrading this species to Critical (B1civ).
*Decision:* Upgrade to Critical.



**Baikal Teal**
*Proposal:* Downgrade to Near Threatened.
*Rationale:* Baikal Teal is currently classified as Vulnerable (A1c,d; A2c,d) because of its declining population resulting from hunting and destruction of wintering wetland habitats for agriculture and economic development. Its global population was estimated at *ca*. 210,000 wintering birds (Miyabayashi & Mundkur 1999). Recent information from South Korea suggests a wintering population of 300-400,000 individuals (Moores *pers. comm*.). Given the increase in the known population, this species may be better classified as Near Threatened, almost meeting criterion A2. However, it is important to ascertain population trends in China and Japan and in the breeding range. Furthermore, although numbers appear to have increased in South Korea, they are concentrated at few sites which are mostly unprotected and potentially threatened, so there is some potential for rapid future declines in the species there.
*Decision:* Downgrade to Near Threatened.

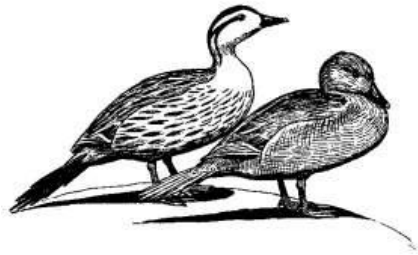
**Orinoco Goose**
*Proposal:* Upgrade from Near Threatened (category still to be determined).
*Rationale:* The Orinoco Goose is currently classified as Near Threatened, almost meeting criteria A1c,d; A2c,d, (declines approaching 30% in 10 years or three generations). Ken Kriese posted the following comments: "I am a PhD student in Ecology at the University of California, Davis. My research has focused on the reproductive ecology of the Orinoco Goose in the llanos of Venezuela. As part of my thesis, I am including a review of the population of this species. Currently, the population estimate is 25,000-100,000 individuals (Rose & Scott 1997). Gomez-Dallmeier & Cringan (1989) further suggest that approximately 50% of these individuals may occur in Venezuela.

My work, along with surveys conducted by Mark Gregory, a PhD student at SUNY - Syracuse, found only two large populations of Orinoco Geese in the Venezuelan llanos, suggesting that the population in Venezuela could be as few as 5,000 birds. I am currently gathering information from biologists and birders in South America regarding the status of the Orinoco Goose in other countries, including locations where is has been sighted and how many individuals were seen. While this work is in progress, it appears that the Orinoco Goose is typically seen in small groups in scattered locations. Columbia and Bolivia may be the only other countries where large concentrations of birds may be observed. Therefore, while my assessment is not yet complete, I believe that the categorisation of Orinoco Goose as Near Threatened needs to be reconsidered, as the original population estimate of 25,000-100,000 appeard to be high."
*Decision:* Awaiting further information.

**Chubut Steamerduck**
*Proposal:* Upgrade to Vulnerable.
*Rationale:* The Chubut Steamerduck is currently considered Near Threatened as it almost meets criteria C2b and D2. The population has been estimated at <10,000 individuals, but is believed to be stable (Wetlands International 2002), a situation unchanged from the previous global waterbird population estimates (Rose & Scott 1997). Wetlands International (2002) includes a note that "the population may only number a few hundred (D. Scott *pers. obs*.)". If this proves to be the case, the species would justify for listing as Vulnerable under criterion D1 (very small population of <1,000 mature individuals). Information is required regarding population size, trends and threats.
*Decision:* Insufficient evidence to upgrade status at present.

**Flying Steamerduck**
*Proposal:* Elevate to Near Threatened.
*Rationale:* The Flying Steamerduck *Tachyeres patachonicus* is estimated to have a total population of <25,000 birds (Wetlands International 2002). The Falkland/Malvinas Islands population is estimated at 600-1,200 birds (Woods & Woods 1997), though the population trend appears to be unknown. The larger mainland population is believed to be in decline (Wetlands International 2002). Although further information is required on threats and population size and trends, it may now be prudent to list the species as Near Threatened, almost meeting criterion A2a (and others?).
*Decision:* Insufficient evidence to upgrade status at present.

**Torrent Duck**
*Proposal:* Elevate to Near Threatened.
*Rationale:* The Torrent Duck *Merganetta armata* is thought to have a global population of <35,000 birds, divided between three sub-species with disparate ranges (Wetlands International 2002). All three sub-species have fairly small populations (≤13,000) which are believed to be declining The species should perhaps be listed as Near Threatened almost meeting criterion A2a.
*Decision:* Insufficient evidence to upgrade status at present.



To comment on these proposals or suggest species for reclassification in the next round of update, please post comments on the discussion forum on the BirdLife website, or contact Stuart Butchart (*stuart.butchart@birdlife.org.uk*) who is coordinating this initiative.

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# STATUS AND DISTRIBUTION OF BAIKAL TEAL

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## INTRODUCTION

In spite of its relative abundance and extensive range, the Baikal Teal is one of the least studied birds of East Asia. The species is currently listed as Vulnerable by IUCN and is included in the Russian Red Data Book. This paper presents new data from the staging areas in Russia (Khanka Lake) and on the wintering grounds in South Korea. This article continues the international publication of the results of a cooperative programme of research between Russian and Korean scientists. It is the first in a series of publications on the current status and distribution of threatened species in East Asia.

## BREEDING

The Baikal Teal breeds in East Siberia from the Yenisei River to the Pacific coast and north to the Arctic Ocean. The southern border of its breeding range stretches north from Lake Baikal with an isolated breeding population in the Amur River valley (Stepanyan 1990; Roslyakov 1984; Degtyarev & Perfilyev 1998). It inhabits forested habitats, tundra with sparse trees, coastal areas with abundant aquatic vegetation, and lowland river valleys. Most areas have little or no human disturbance. Due to its widespread distribution in largely uninhabited landscapes, breeding population estimates for Baikal Teal are lacking. Subjective evaluations of local abundance and trends have been made in certain regions. For example, 2,500 Baikal Teal were thought to breed in the Krasnoyarsk region in the late 1970s and early 1980s (Martynov 1983). In Yakutia, in the heart of the Baikal Teal's breeding range, population declines began in the mid-1960s, beginning with a sharp decline of more than ten fold and continuing with a slow ongoing decline from the mid-1970s (Degtyarev & Perfilyev 1998). Other authors noted a population decline in Yakutia during the 1950s and 1960s (Labutin & Larionov 1975; Labutin & Pozdnyakov 1978; Shugaev 1979; Andreev 1987; Labutin *et al*. 1988). In Central Siberia, the number of Baikal Teal declined from the mid-1960s to the mid-1980s, becoming exceedingly rare in the southern half of the taiga (Rogacheva 1988).

## MIGRATION

The Baikal Teal winters mainly in South Korea, some 2,500km south of its breeding areas. On the lower reaches of the Amur River, the Baikal Teal is recorded in groups of tens or hundreds (Dombrovsky 1895; Medvedev 1909; Gavrin & Rakov 1960; Leontiev 1965; Votintsev 1942; Shulpin 1936; Skryabin 1975, our data). In the central part of the flyway (Middle Amur, Khanka Lake), Baikal Teal are more common in spring than in autumn (Shulpin 1936; Barancheev 1954; Polivanova 1971; Gluschenko *et al*. 1995). In the west of the flyway (in the Baikal region), numbers are similar in spring and autumn (Votintsev 1942; Skryabin 1975), whilst in the east (Lower Amur) numbers of Baikal Teal are higher in autumn (Roslyakov 1984; Shibaev *et al*. 1996). This has led to the suggestion that Baikal Teal follow a circular flyway with an autumn southward migration along the Pacific coast (Tugarinov 1941), although this has been disputed (e.g. Votintsev 1942). Other theories include different extents of nocturnal migration (Dementiev & Gladkov 1952; Polivanova 1971), a change in the flyway (Shulpin 1936), difficulties in identifying the species (Dementiev & Gladkov 1952), and climatic factors (Votintsev 1947; Skryabin 1975). Data from Lake Baikal (Skryabin 1975), and from the Torei Lakes (Baikal Region) suggest that numbers increase after increases in lake water levels (Leontiev 1965).

Our data collected at Khanka Lake from 1994 to 2000 suggest the number of Baikal Teal on spring migration fluctuates widely, and not in relation to lake water levels.

Variation in numbers could be due to irregular observations, the extent of nocturnal migration, or the height at which birds migrate. At 1900h local time on 4 April 1994 at Trostnikovoye Lake in the Prikhankayskaya lowlands, we observed a flock of 900 Baikal Teal flying at a height of several kilometres.

Historical information from Russia describes a decline in Baikal Teal numbers on spring migration. In the Yenisey area of the Krasnoyarsk region, spring numbers declined by 10-20 times over a 15-year period (Rogacheva 1988). On the Lower Tunguska River, within the Irkutsk oblast, the Baikal Teal was previously common (Tkachenko 1932) and eaten in large numbers by miners in the 1950s. By the end of the 20th century, the Baikal Teal was extremely rare here (Melnikova *et al*. 1984; Durnev *et al*. 1996). In the Lower Priamurye, the Baikal Teal was common before 1959, but its numbers subsequently declined. However, in the springs of 1972 and 1973 nearly 5,000 birds were counted here, whilst 5-10,000 birds were counted in 1976-79 (Roslyakov 1984). On Khanka Lake, the Baikal Teal was common in the first half of the 20th century (Prghevalski 1870; Shulpin 1936; Vorobiev 1954), but then suffered a severe decline (Medvedev 1909; Shulpin 1936). The proportion of Baikal Teal counted at Lake Khanka varied from 1.2-85.8% of all waterbirds.

In the first half of the 1960s, the Baikal Teal was still the most abundant species at Lake Khanka during spring migration with 40-50,000 birds in most years (Polivanova 1971; Polivanov 1975). During the 1970s, numbers were much lower (Polivanov 1975). Between 1972 and 1994, Baikal Teal formed only 8.3% of springtime ducks (Gluschenko *et al*. 1995), and were less common than Mallard *Anas platyrhynchos*, Pintail *A. acuta*, Wigeon *A. penelope* and Teal *A. crecca*. By the end of the 20th century, the Baikal Teal was once again the most common species on spring migration at Lake Khanka, with numbers generally reaching 50-100,000 individuals. Overall, we estimate that around 120,000 Baikal Teal occur in the Prikhankayskaya lowlands. In the first half of the April, numbers drop to around 60,000 birds, possibly due to the onset of spring hunting.

Mass movements of Baikal Teal at Lake Khanka have been observed only once in 20 years. During a seven hour period on the afternoon of 31 March 2000, 27 flocks totalling >35,000 Baikal Teal were seen migrating north over the lake at a height of 300-600m. On the same day, large numbers of Baikal Teal were also seen flying west, probably from a roost site in the mouth of the Lefu River to Trostnikovoye Lake, where we had previously observed over 20,000 Baikal Teal on 30 March 2000. During the night of 31 March, we also observed a feeding flock of 15,000 Baikal Teal.

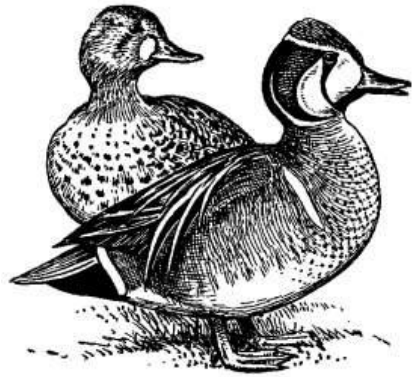
Khanka Lake has always held very few Baikal Teal during autumn migration (Shulpin 1936; Polivanova 1971; Gluschenko *et al*. 1995). However, in recent years (2000-2003), the species has become more common at the beginning of autumn migration in late August – early September.

**WINTERING**

The Baikal Teal winters in southern Japan, in South Korea and East China on the Huanhe and Yangtse Rivers and in coastal areas of Taiwan and Hainan. In the 1940s, Baikal Teal were common on the wintering grounds in Japan. In 1947, three people caught 50,000 Baikal Teal in one winter, including 10,000 in just one day (Austin & Kuroda 1953). Numbers of Baikal Teal wintering in Japan between 1970 and 1981 varied from 2,000 to 37,000 birds, but with no clear trend. Between 1982 and 1992, numbers declined to 2-6,000, although this may have been due to a redistribution of the population.

In South Korea, Baikal Teal used to be recorded only on migration (Austin 1948). However, since 1984 a major wintering concentration has formed at Chunam in the south-east of the country. In the 1984/85 winter, about 5,000 birds were recorded, increasing to around 20,000 between 1987 and 1990. During the 1998/99 winter, around 180,000 Baikal Teal were counted in Korea: 168,000 at Naenam, 10-15,000 at Kuem, and 1,200 birds at Chunam. In November 1999 and 2000, 250-270,000 birds were counted in two regions of Korea (Moores & Kyoung-Won 2000). There may be three explanations for the marked increases in the numbers of Baikal Teal wintering in South Korea in the last two decades: 1) increased count coverage; 2) redistribution of the wintering population, in particular from Japan; 3) a real population increase.

The number of Baikal Teal wintering in China is largely unknown. In 1990, a total of 2,878 birds were counted (Perennou *et al*. 1990). During January-February 2000, about 1,500 Baikal Teal were counted in the Yancheng Nature Reserve in the lower Yangtse River. No Baikal Teal have ever been recorded at Poyang Lake Nature Reserve.



Previous winter population estimates for Baikal Teal have included 40,000 birds (Perennou *et al*. 1994), 105,000 birds (Rose & Scott 1997) and 210,000 birds (Miyabayashi & Mundkur 1999). No doubt these represent minima.

**SUMMARY AND RECOMMENDATIONS**

1. The Baikal Teal is a migratory species which appears to be very flexible in its use of both breeding and wintering areas.
2. During migration and in winter, the species forms large compact flocks which previously made it susceptible to certain threats, including over-hunting, disease, and poisoning.
3. Migration is thought to occur at night and at high altitude thus hampering monitoring.
4. The world population of Baikal Teal was thought to have declined markedly during the middle of the 20th century, but it has subsequently increased, probably to 300-500,000 birds.
5. The Baikal Teal should probably no longer be listed by IUCN as globally threatened nor included in the Russian Red Data Book.
6. An international working group on Baikal Teal should be formed to organise an annual monitoring programme of simultaneous counts throughout the wintering range. *[Editor's Note: in August 2002, a Baikal Teal Task Force was established under the auspices of the Asia Pacific Migratory Waterbird*

*Conservation Strategy – see p. 19 for more details]*

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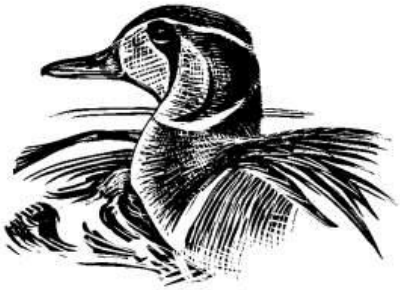

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# CRITICAL SITUATION AT EL HONDO THREATENS MARBLED TEAL AND WHITE-HEADED DUCK

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The El Hondo wetlands (2,400ha) in the Valencian region of Spain are protected as a Natural Park, a Ramsar site (since 1989) and a EU Special Protection Area. This site (containing two shallow reservoirs and surrounding ponds) is enormously important for waterfowl, and during the 1990s it became the most important breeding site in Europe for both the Marbled Teal and the White-headed Duck. However, the conservation status of the wetlands has undergone a major decline in recent years. As a result, the numbers of breeding Marbled Teal have crashed in 2001-2003 and are now lower than in Doñana in Andalucía. Numbers of White-headed Ducks have also crashed, and most of the Spanish population of this species is now concentrated in Andalucía, as was the case before the late 1990s.

Many conservationists and scientists in Spain are deeply concerned about the current status of this wetland and the various factors threatening its ecological values (see e.g. Grupo de Investigación del Agua 2002). SEO/BirdLife and other NGOs have long been lobbying for it to be included on the Montreux record of Ramsar sites under threat, but it has not so far been included owing to opposition from the regional government, the Generalitat Valenciana. The regional government has also shown a lack of interest in managing the site effectively for conservation, and in funding research into conservation problems at the site. Following its return to power in elections in 2003, the regional government has dissolved the Conselleria de Medio Ambiente (environmental agency) responsible for managing protected areas and species, and handed these responsibilities to the Conselleria de Territorio y Vivienda (the land and housing agency). In 2002, the CMA cancelled research into the ecology and conservation of White-headed Ducks at El Hondo, despite the fact it was an approved part of an EU LIFE project (LIFE00 NAT/E/007311). Many individuals and NGOs interested in identifying or solving conservation problems at El Hondo, or just counting the birds, have found it increasing difficult to get permission to access the wetlands. As a result, the level of ornithological and scientific activity at El Hondo is now much lower than 10 years ago.

The biggest single problem at the moment is the poor water quality in the site. The Ramsar site database says “the water in the reservoirs is highly contaminated by agricultural, industrial and domestic effluents”. This is truer now than ever before. The water comes mainly from the lower reaches of the River Segura (the most polluted river in Spain) and is stored in the reservoirs for later use in irrigation (see Viñals *et al*. 2001 for details). The park authorities are responsible for managing the site, but in practice they are doing nothing to control the quality and quantity of water that is added to or taken from the reservoirs by the agricultural community. The appalling quality of the water being fed into the reservoirs has provoked a succession of mass mortalities of waterbirds. Data on the number of birds found dead are no longer released, but hundreds of Marbled Teal and White-headed Duck were found dead in 1999 (the last year for which data are available). In autumn 2002, 50,000kg of dead fish were removed from the reservoirs.

Despite repeated proposals by experts, the park authorities have refused to consider the installation of treatment plants or reedbed filters to improve the quality of the inflow water. At the start of the breeding season in 2003, they decided to completely drain the reservoirs on the basis that the water was “too brackish for use in

irrigation". The fact that both Marbled Teal and White-headed Duck are well adapted to breeding in brackish wetlands, and that the natural state of El Hondo (prior to construction of the reservoirs and other changes to the hydrology) was a brackish, closed-basin wetland, does not seem relevant to the regional government. Instead of working to conserve the natural values of the wetlands, they are planning to improve the quality of the reservoirs for irrigation by increasing their depth, a measure that can only harm their value for waterbirds. They also plan to obtain fresh water from the catchment of the Ebro River in north-eastern Spain via the construction of a huge canal as part of the National Hydrological Plan which will have an extremely negative impact on Spain's wetlands and waterbirds (see *http://www.seo.org/2003/08/030814_1/* and *http://www.wwf.es/aguas_politica_phn.php*).

Another of the major problems is the indiscriminate hunting (which is still permitted in the ponds within El Hondo) and the associated lead poisoning which seriously affects the threatened birds (Mateo *et al*. 2001). Despite a royal decree banning lead shot on Ramsar sites in Spain and the fact that lead shot densities in El Hondo are some of the highest recorded anywhere in the world, so far the park authorities have done nothing to ensure that hunters switch from using lead shot. Hunting activities also worsen the hyper-eutrophication problem as hundreds of tons of seeds and fruits are dumped into the wetland every year (supposedly to attract ducks).

We can only hope that the regional government changes its current attitude in the near future and begins to give El Hondo and its waterbirds the attention they deserve.

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