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A global overview of the conservation,
management and research of the
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Harvest of migratory geese *Chloephaga* spp. in Argentina: an overview of the present situation

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ABSTRACT

Austral geese (*Chloephaga* spp.) are endemic to South America. Four species are migratory and occur in Argentina and Chile. One of these, the Ruddy-headed Goose *Chloephaga rubidiceps*, is endangered on the mainland of South America, where the population is estimated at only about 1 000 individuals. During the migration periods and in winter, austral geese are threatened by recreational hunting and hunting to control crop damage. Recreational hunting is a common activity in Argentina, and attracts many foreign hunters from Europe and North America. Despite the fact that large numbers of geese are killed each year, no information exists on the impact of this hunting on their populations. The aims of the present study were to make an assessment of the hunting of austral geese in Argentina, and to evaluate the potential consequences of hunting for the conservation of these species. The assessment was based on an intensive literature search, an analysis of current hunting regulations, questionnaires to waterfowl hunters, and interviews with wildlife authorities and key specialists. Issues addressed include the status of the geese, hunting practices, hunting regulations, and implications for conservation. The results are discussed in the context of the current situation, and monitoring and management needs are formulated in order to contribute to the conservation of migratory geese in southern South America.

INTRODUCTION

The five species of austral geese (*Chloephaga* spp.) are endemic to South America. Four of the species occur on the mainland of southern South America (including Tierra del Fuego) and also have separate subspecies or populations in the Malvinas Falkland Islands (Canevari 1996). The mainland populations of the Upland Goose *Chloephaga picta*, Ashy-headed Goose *C. poliocephala* and Ruddy-headed Goose *C. rubidiceps* are migratory (Canevari 1996). Their breeding grounds are located in southern Patagonia and Tierra del Fuego (Argentina and Chile), while their wintering areas are in northern Patagonia and the southern pampas of Buenos Aires Province (Argentina).

The mainland and Tierra del Fuego population of the Ruddy-headed Goose has a very restricted distribution. Breeding pairs concentrate in the surroundings of Punta Arenas (southern Chile) and in the northern portion of Tierra del Fuego island (Madsen *et al.* 2003), while during the winter, the birds concentrate in a small area in southern Buenos Aires Province (Blanco *et al.* 2003a). This population has declined steeply since the 1950s, and is now considered in danger of extinction in both Argentina and Chile (García Fernández *et al.* 1997, Glade 1993, de la Balze & Blanco 2002). The size of this population is currently estimated at around 1 000 individuals (Madsen *et al.* 2003, Blanco *et al.* 2003b).

The available information suggests a decreasing trend not only for the Ruddy-headed Goose but also for the other two migratory species (Canevari 1996, Wetlands International 2002)

Table 1. Status of the subspecies (s) or populations (p) of three species of austral geese (*Chloephaga* spp.) on the mainland of South America.

Species	Common name	Estimate	Trend
<i>Chloephaga picta picta</i> (s)	Upland Goose	D	DEC
<i>Chloephaga poliocephala</i> (p)	Ashy-headed Goose	C/D	DEC
<i>Chloephaga rubidiceps</i> (p)	Ruddy-headed Goose	900-1 178	DEC

C = 25 000-100 000 individuals; D = 100 000-1 000 000 individuals; DEC = decreasing trend.

Sources: Wetlands International (2002), Blanco *et al.* (2003b).

(Table 1). Recent observations of reduced numbers both in mainland South America and in Tierra del Fuego (Blanco *et al.* 2003b, N. Loekemeyer pers. comm., J. Veiga pers. comm.) point in the same direction. Population declines appear to have been caused by the combined effects of various factors.

The hunting of austral geese is a common activity in Argentina and Chile, and is legally restricted to two species, the Upland Goose and Ashy-headed Goose (Canevari 1996, Servicio Agrícola y Ganadero 1999, Blanco *et al.* 2002). In Argentina, hunting affects goose populations during the autumn migration season and in winter, mainly in the northern portion of their ranges. The aims of the present study were to undertake an assessment of the hunting of austral geese in Argentina, including a review of the provincial regulations, and to consider the implications for conservation.

STUDY AREA AND METHODS

Argentina is a federal country with 23 provincial jurisdictions. Provinces are responsible for the management of natural resources within their territories, including wildlife. This assessment was restricted to the provinces of Buenos Aires, Neuquén, Río Negro, Chubut, Santa Cruz and Tierra del Fuego, which encompass the main distribution of austral geese in Argentina (Fig. 1).

The assessment was based on the following sources of information: 1) an intensive search of the literature concerning the harvesting of austral geese; 2) an analysis of hunting regulations in each province; 3) questionnaires to waterfowl hunters; and 4) interviews with wildlife authorities and key specialists.

RESULTS AND DISCUSSION

Waterfowl are hunted for recreation (sport hunting), as a subsistence harvest and for the control of crop damage (Ojasti 2000). Many South American species of waterfowl are threatened by intensive hunting because of insufficient regulations; most of the regulations that do exist relate to those species with a critical conservation status (Menegheti *et al.* 1990).



Fig. 1. The study area in southern Argentina, indicating provincial jurisdictions and the northern limit of austral goose migration.

Austral geese are amongst the most commonly hunted species of waterfowl in Argentina. The hunting of Upland and Ashy-headed Geese is permitted in various provinces, while the Ruddy-headed Goose is protected by national and provincial laws. However, the difficulty in distinguishing Ruddy-headed Geese from female Upland Geese poses a serious threat to the former species, as the geese form mixed flocks during migration and in winter.

Sport hunting

The hunting of austral geese is common in several provinces of Argentina, although local hunters generally prefer terrestrial game species such as the Spotted Nothura *Nothura maculosa* and European Hare *Lepus capensis* (Blanco *et al.* 2002). In Buenos Aires Province, for example, only about 18% of the hunters interviewed expressed a preference for waterfowl (Parisi 1998).

Goose hunting is permitted throughout the entire range of

Table 2. Hunting regulations and bag limits (geese per hunter per day) for the Upland Goose *Chloephaga picta* (CHLPI) and Ashy-headed Goose *C. poliocephala* (CHLPO) in Argentina.

Province	Bag limits		Season	Maximum per season
	CHLPI	CHLPO		
Buenos Aires	No limit		Whole year	No limit
Río Negro	12	12	1 May – 30 September	48
Neuquén	6	6	1 May – 31 July	24 / 36
Chubut	5	5	1 May – 31 July	?
Santa Cruz	2	0*	1 April – 31 August	2
Tierra del Fuego	Prohibited		—	—

* The hunting of Ashy-headed Geese is prohibited in Santa Cruz Province.

the geese, with the exception of Tierra del Fuego, and takes place mainly during the autumn migration and in winter. It is practised mainly by foreign hunters who consider the austral geese as overlooked game species. In recent years, goose hunting has become more popular not only in Buenos Aires (F. Moschione pers. comm.), but also in the Patagonian provinces (A. Contreras pers. comm.).

The limited information available suggests that the contribution of sport hunting to the total number of geese killed per year in Argentina varies between provinces. In Chubut Province, for example, about 80% of the goose harvest results from recreational hunting and only 20% from hunting to control the numbers of geese which utilize agricultural land in the river valleys as staging areas during their migrations (A. Contreras pers. comm.). Bag limits for Upland and Ashy-headed Geese also differ between provinces, ranging from “unlimited hunting” in Buenos Aires Province (a wintering area) to total prohibition in Tierra del Fuego (a breeding area) (Table 2).

Hunting to control numbers

Hunting to control the numbers of geese is more common in the northern portion of their range than in the south. In northern Patagonia and the southern Pampas, geese have traditionally been persecuted by local farmers because they feed on crops (mainly wheat) and pastures during the migration seasons and in winter. In the past, geese were also considered to compete with sheep in southern Patagonia, where they were chased and killed by ranchers (N. Loekemeyer pers. comm.).

In 1931, austral geese were officially declared “agricultural pests” (Pergolani de Costa 1955), but the Ruddy-headed Goose was later excluded from the list of “pest species” because of its remarkable fall in numbers (Rumboll 1975). More recently, Tracanna & Ferreira (1984) and Martin *et al.* (1986) questioned the real magnitude of wheat losses caused by grazing geese, and pointed out that situations in which austral geese come into conflict with agriculture are relatively few. In some areas of Buenos Aires Province, where geese are still considered harmful by local farmers, aircraft are used to scare them away from wheat fields (R. Scoffield pers. comm.). Furthermore, some farmers welcome foreign hunters to kill as many geese as they want in return for a payment of just US\$ 10 per hunter per day.

Is sustainable harvest possible?

The hunting of austral geese in Argentina lacks an adequate regulatory framework to guarantee the sustainable use of the resource. In Buenos Aires Province, the hunting of Upland and

Ashy-headed Geese is allowed without limits throughout the whole year (Blanco *et al.* 2002). This decision, which is not based on population data, allows geese to be killed on a massive scale without any governmental control.

According to Zaccagnini (2002), a programme aimed at ensuring the sustainable use of waterfowl populations should include at least the following components: 1) biological (monitoring of populations and basic ecological research); 2) use/harvest (monitoring the harvest by working with hunters); 3) conservation and education (training and outreach materials such as brochures, field guides etc.); and 4) financial (fundraising for implementation of actions under components 1, 2 and 3).

Some of these components and activities are mentioned briefly in the provincial regulations, but are rarely put into practice. The main gaps that we identified if sustainable management of the resource is to be achieved are the lack of:

- accurate population estimates and trend data for the Upland Goose and Ashy-headed Goose;
- data on the geese hunted per season in each province (species, numbers, sex ratio, age composition);
- Specific actions to protect the Ruddy-headed Goose from illegal hunting;
- co-ordination between the provinces with respect to hunting regulations and the setting of bag limits within Patagonia;
- education/awareness campaigns directed at farmers, outfitters and hunters, with an emphasis on conservation of the Ruddy-headed Goose;
- funding support to keep the programme functioning.

Our main recommendations are as follows:

- organization of a National Austral Goose Monitoring Programme with the participation of the federal government and provinces, based on “survey stations” distributed throughout the migration and wintering ranges of the geese;
- organization of a harvest monitoring programme in each province involving the local hunting associations;
- prohibition of goose hunting within the main breeding and wintering areas of the Ruddy-headed Goose, as well as along its migration route (e.g. Chubut Province has recently prohibited goose hunting in the coastal departments along the migration route of the Ruddy-headed Goose);
- promotion of inter-provincial co-ordination concerning goose management and conservation within the framework of the Patagonian Wildlife Advisory Council (CARPFS).

FINAL REMARKS

The conservation and management of migratory species which are shared by two or more countries require international co-operation. Furthermore, under a federal system of natural resource management such as that found in Argentina, co-ordination is required between provinces in their efforts to manage shared species such as the austral geese.

As in many other parts of the world, geese are considered simultaneously to be pests on agriculture and to be overlooked game species. In Argentina, austral geese are hunted without there being an adequate framework for the sustainable use of the resource. As in the case of the globally threatened Lesser White-fronted Goose *Anser erythropus*, the Ruddy-headed Goose is today seriously threatened by illegal hunting during the autumn migration season and in winter, as farmers and hunters do not distinguish it from other very similar goose species. Immediate action is required to bring the mainland population of the Ruddy-headed Goose to a favourable conservation status.

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