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RANGE EXPANSION OF THE EUROPEAN STARLING *STURNUS VULGARIS* IN ARGENTINA

EXPANSIÓN DEL ESTORNINO PINTO *STURNUS VULGARIS* EN ARGENTINA

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The European or Common Starling *Sturnus vulgaris* is considered one of the worst invasive bird species, with successful widespread introductions around the world (Feare, 1984). Most releases were made in the nineteenth and early twentieth centuries and the species has now become one of the commonest birds in New Zealand, south-eastern Australia, Southern Africa, as well as some Pacific and Caribbean islands such as Fiji and Jamaica, among other countries. The bird is also well established in North America, from Arctic Canada to the subtropics of Mexico. In the late twentieth century its breeding distribution spread to include northern Spain and it now breeds in the Canary Islands (Peris, 2003).

Despite this widespread range, until now the starling was not present in South America. However, during the austral spring of 1987-88, the starling was first reported as a breeding species in wooded areas of the Palermo district of the city of Buenos Aires, Argentina, and at the south-eastern end of the city in the Bernal - Quilmes department, about 21 km from the first site (Pérez, 1988; Schmidtutz & Agulián, 1988). From 1990 to 1993, the species was frequently observed feeding nestlings in the extensive Buenos Aires parkland known as the Costanera Sur (Rivero *et al.*, 1996), and Di Giacomo *et al.* (1993) observed a small wintering flock of seven individuals at Mar de Ajó, about 200 km from the original breeding grounds. The Argentinean Secretariat of the Environment and Sustainable Development - "Secretaría de Ambiente y Desarrollo Sustentable" (SAyDS) carried out field projects aimed at eradicating the species, thus about 370 starlings were hunted around Quilmes in the winter of 1997 (Anonymous, 1998; *obs. pers.*).

In spite of its established range in the northeast of Buenos Aires province, observations from 2001 report the presence of the species at the San Javier river (Santa Fé), as well as at Cerrito and Villa Urquiza (Entre Ríos) (Zamorano, *obs. pers.*), which are about 400 - 475 km respectively from the first breeding records made in 1987. The origins of these new occurrences of the species could lie in a local population, since legislation against imports was enforced more stringently from 1989 onward. However, according to Navas (2002) they are probably due to new introductions. Post-breeding flocks of up to 80-100 individuals (adults and juveniles) were observed in 2004 in the southern part of the province of Entre Ríos.

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To date, all authors suggest that the species come from an introduced North American stock (Navas, 2002), but the wide variety of plumage patterns observed, although mostly due to differences in sex and age, could reflect different origins. Nevertheless, work on southern European birds shows that all the starling populations share a common gene pool (De la Cruz *et al.*, 1997). In all field observations, only the species *vulgaris* was detected and never its close relative the Spotless Starling, *S. unicolor*, a common species in the Iberian Peninsula (Peris, 2003) which shows slight genetic differences with the European species (De la Cruz *et al.*, 1997). In fact, both species can give a small percentage of hybrids in sympatric areas (Motis, 1992).

In order to know the current distribution of the species, the breeding and wintering population of the species was monitored by the authors from 1997 up to 2002 in the province of Buenos Aires. The methods employed were: a) point counts (in the breeding season between September to January), and b) roadside counts over the rest of the year, respectively.

a) Simple random point counts with no fixed schedule or ratio were performed by the authors from 1997 to 2002 at localities close to the city of Buenos Aires (Quilmes, Bernal, Avellaneda, Berazategui, Ensenada and La Plata). New breeding censuses were enforced in September-October 2003 by playing the calls of European Starlings from a tape recorder, and waiting for the presence of live starlings. Individual points were selected using a stratified random design in the optimum habitat for the species (parklands and grasslands) at 8 plots of 12.5 ha each and within a radius of 30 km from the city of La Plata, in the place where the species was cited towards the end of the last decade (Montalti & Kopij, 2001). A 10 minute count period, plus an initial settling time of 3 minutes, and a minimum distance band of about 40 m were chosen. In all cases, the distances between points were greater than 300 - 400 m.

b) Roadside counts were made at the same localities from July to August. Observations were obtained by driving slowly (30-50 km/h) on the main roads, stopping when flocks were observed at either side of the road, and counting the number of birds over the largest distance available. A selection of routes near garbage plots or grasslands was made in order to gain further possibilities for detecting the birds. All observations, both breeding and wintering seasons, were made in good weather conditions.

The breeding data show that the starling is currently an established species ranging from the north-western part of the city of Buenos Aires (department of General San Martin) to the department of Magdalena on the Atlantic coast, 120 km from the site of the first observations made in the eighties in the heart of Buenos Aires. The expansion runs along the Atlantic coast up to 30 km inland, with an average progression of 7.5 km/year from 1987 onwards, which is greater than the expansion of 3.6 km by year reported for the same species in the Iberian Peninsula during the 70-80´s (Ferrer *et al.*, 1991), although slow if compared with the 43 km/year of the European Starling in North America over the last century (Wing, 1943). In any case, in the present century the species seems to have accelerated its breeding expansion in a north-south direction by up to 26 km/year or 18 km/year respectively, according to recent observations at Mar del Plata (Isacch & Isacch, 2004) and Entre Ríos (*pers. obs*.) (Fig. 1). The expected rate of expansion of the species taking in account models based on data from European ringing recoveries, could reach between 46.3 and 77.9 km/year (Van den Bosch *et al.*, 1992). These distances are considerably larger than the real ones observed in Argentina, and could also reflect a different origin of the stocks, because birds from northern and eastern Europe fly greater distances than those from southern and western Europe (Peris, 1991). The censuses performed using call recordings reveal that the bird is present only at 25% of the avail-

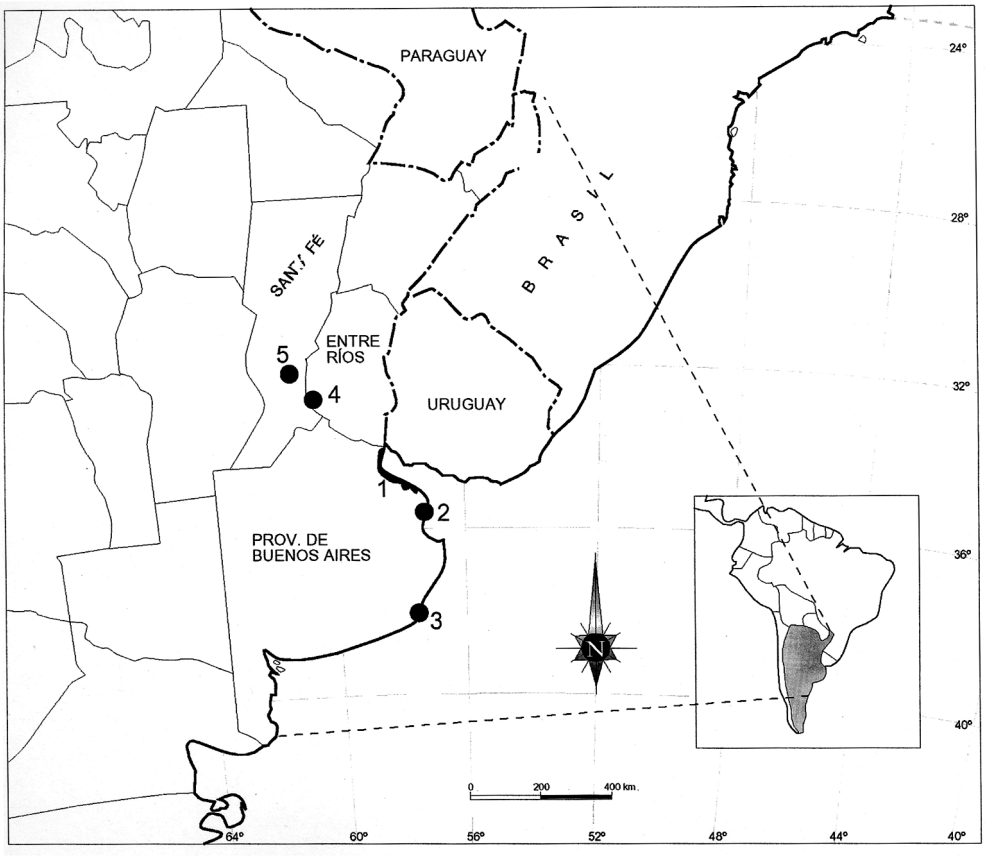

FIG. 1.—Current distribution (2004) of the European Starling (*Sturnus vulgaris*) in Argentina. B = breeding, W = wintering. 1) Localities around Buenos Aires city and La Plata B-W, 2) Samborombón Bay, W, 3) Mar del Plata, B-W, 4) surroundings of Cerrito-Villa Urquiza, Entre Ríos and 5) around San Javier river, Santa Fé.

[Distribución actual (2004) del Estornino Pinto (Sturnus vulgaris) *en Argentina. B = Reproducción, W = invernada. Localidades alrededor de Buenos Aires y La Plata B – W, 2) Bahía de Samborombón, W, 3) Mar del Plata, B – W, 4) alrededores de Cerrito Villa Urquiza, Entre Ríos y 5) alrededor del río San Javier, Santa Fé.]*

able habitats within its current breeding distribution. The bird probably needs first to cover the nearby habitat available before expanding over the country, as occurred in North America, where the species required more than a decade to become well established around New York city, although from that moment the bird rapidly expanded over the subcontinent (Wing, 1943).

In spite of this current relatively low level of occupancy, the bird seems to be a successful breeder in Argentina, as is reflected in its post-breeding and winter flocks which are mainly composed of juvenile birds. Thus, the non-breeding flocks of 3,5 and 11 birds observed in 1997-2001 at Quilmes and Ensenada, both of them districts around Buenos Aires, have increased from 2002 onwards to large

flocks (700 birds in 2002; 950 birds in 2003). Smaller flocks of 50, 80 and 120 birds were observed near La Plata from 2002, mainly around garbage dumps situated on the main road between both localities. Similar numbers were seen at Mar de Ajó in the southeastern part of the province in 2002-03. According to the current data, the starling behaves as a partial migrant in Argentina. Thus, the maximum distances recorded in the post-breeding season from the first observations at the city of Buenos Aires, are 375 Km south and 400 km north respectively, reflecting a wintering spread of 25-27 km/year. No data are available to confirm whether these wintering flocks largely constituted of juvenile birds are the origin of the new breeding spots, although the changing migratory behaviour of the species would allow this possibility (Spaans, 1977).

The natural spread of the European starling in northern Spain is related to increasing cereal cultivation, an increase in pasture ranges, and the raising of cattle in feed-lots (Motis *et al.*, 1983; Peris *et al.*, 1987), all of these being practices that were also implemented in Argentina during the 1980's and 1990´s. However, from 2000 onwards-dramatic changes have occurred in Argentinean agriculture. Thus, vast grassland areas are now in regression in favour of soybean cultivation, affording a cropland that is not favourable to any bird species (Leveau & Leveau, 2004). In any case, if the starlings reach higher population levels, they may spread over the present agricultural landscape or along corridors in the areas devoted to soybean cultivation, as has occurred in other countries (Feare, 1984). For one reason or another, currently the starling has not moved inland, its breeding progression being limited to along the Rio de La Plata-Atlantic coast and the Paraná basin.

Argentinean starlings use a wide array of facilities as nest sites, ranging from broken streetlamps to cranes, although most nests are situated in holes excavated by woodpeckers, (*Colaptes* spp.), mostly on old tree species of foreign extraction, such as elms (*Ulmus* spp.), poplars (*Populus* spp.), eucalyptus (*Eucalyptus* spp.) and oaks (*Quercus* spp), which tend to be planted to limit farmland plots and are widespread throughout the country. In Argentina starlings engage in sexual activity from September to December; nestlings are present in October (Schmidtutz & Agulián, 1988), and fledglings are observed from December, with a peak number in January (*pers. obs.*).

In Argentina the birds forage on insects and their larvae, and seeds of exotic (*Phoenix canariensis*) or native plants (*Lagunaria papersonii*) (Pérez, 1988). The species usually forages in short grasses close to shiny cowbirds (*Molothrus bonariensis)*, although they can also be observed with flocks of parakeets (*Aratinga*, *Phyrrura*), which are also introduced species in the province of Buenos Aires. The species is able to displace native birds from nests, and recently nest-site competition between woodpeckers and starlings has been reported (Ruda, 2004).

RESUMEN.—*El Estornino Pinto (*Sturnus vulgaris *L.) es observado como nidificante en jardines de la ciudad de Buenos Aires (Argentina) a partir del año 1987. Desde esa fecha, la especie ha expandido su área de reproducción a una velocidad promedio de 7.5 km/año, siempre siguiendo la costa atlántica, apenas alejándose 30 km al interior. En Argentina, la especie nidifica en gran variedad de soportes y tiene su ciclo reproductor entre septiembre-diciembre. La expansión observada es menor que la producida en la península Ibérica de 3,5 Km./año, pero mayor que la norteamericana de 43 Km/año. Sin embargo, en invierno efectúan movimientos a lo largo de la costa del Río de La Plata y cuenca fluvial del Paraná, de hasta 300-400 Km., que son la causa de haber sido observados hasta 475 Km. de distancia desde su epicentro original bonaerense; aunque hasta la fecha no hay datos de cría en dichas zonas. No obstante, dada la plas-*

ticidad de la especie, esta podría colonizar en breve tiempo gran parte de los ecosistemas agro-pastoriles del neotrópico.

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