Brazilian Merganser *Mergus octosetaceus* discovered in Jalapão State Park, Tocantins, Brazil

Vívian S. Braz, Tarcísio L. S. Abreu, Leonardo E. Lopes, Lemuel O. Leite, Frederico G. R. França, Mariana M. Vasconcellos and Santos F. Balbino

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Este trabalho apresenta uma nova localidade de ocorrência do Pato-mergulhão *Mergus octosetaceus*, que amplia a distribuição conhecida desta espécie considerada criticamente ameaçada de extinção. Este registro para a região do Jalapão, uma das áreas de Cerrado mais bem preservadas do país, aumenta a expectativa de preservação da espécie em longo prazo. Outras cinco espécies ameaçadas foram registradas na região: *Taoniscus nanus*, *Harpyaliaetus coronatus*, *Anodorhynchus hyacinthinus*, *Amazona xanthops* e *Euscarthmus rufomarginatus*. A exploração turística, a caça e o tráfico de animais silvestres são ameaças à fauna regional. A expansão do cultivo de soja, a construção de usinas hidrelétricas e um projeto de transposição das águas da bacia do rio Tocantins para a bacia do rio São Francisco através da área do Parque estão entre as maiores ameaças à conservação local da espécie.

Brazilian Merganser *Mergus octosetaceus* is considered Critically Endangered at global[6,8] and national levels[5]. Few studies of its breeding biology, diet[3,11], population density and habitat requirements[19] exist. Its overall population is currently estimated at c.250 individuals[6], in small, isolated subpopulations in the headwater tributaries of three large river basins: the upper rio

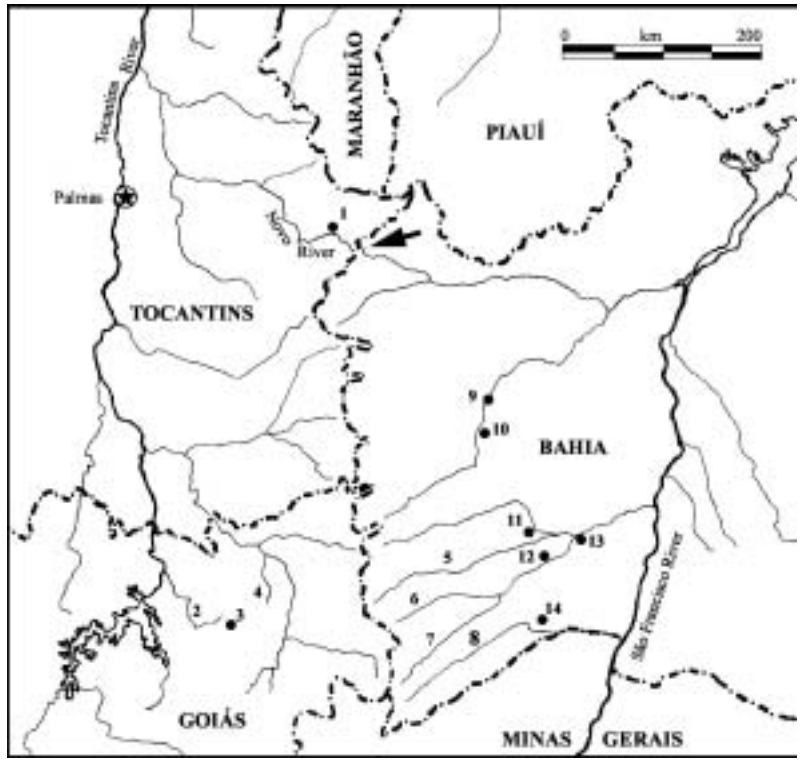

Figure 1. Sight records of Brazilian Merganser *Mergus octosetaceus* in Tocantins and the middle São Francisco basins. 1: rio Novo, near Mateiros, 2: rio Preto, in Chapada dos Veadeiros National Park, 3; rio São Miguel (not marked), near Veadeiros, 4: rio das Pedras, 5: rio Arrojado, 6: rio Pratudão, 7: rio Formoso, 8: rio Itaguari, 9: Barreiras, 10: Sítio Grande, 11: Correntina, 12: Jaborandi, 13: São Félix do Coribe, 14: Cocos. Not marked: Guardamor, in Goiás (data from Collar *et al.*[7], Pineschi & Yamashita[12] and the present study). The arrow marks the location of the study site.

Tocantins, in Goiás and Tocantins[15,16,20]; the rio São Francisco, in Minas Gerais[5,18,19] and Bahia[12]; and the upper rio Paraná, throughout the Paranaíba and Paranapanema valleys[2,8], and reaching Paraguay and Misiones province, Argentina[4,11]. In Argentina, despite much searching, there is only one recent published record, suggesting that the local population is near extinction; that in Paraguay is probably already so[4]. In Brazil, it is considered extinct in the states of Mato Grosso do Sul, Rio de Janeiro, São Paulo and Santa Catarina[6].

Here we report the first record of *M. octosetaceus* for the rio Novo, in Jalapão State Park (JSP), Tocantins, Brazil, which extends its distribution c.200 km north from south-west Bahia, in the São Francisco basin[12] and the Paranã valley, on the upper Tocantins river[15,16,20] (Fig. 1).

Study site

Jalapão is in eastern Tocantins state, near the border with the states of Maranhão, Piauí and Bahia, and covers 53,340 km^2. Due to its geographical isolation and infertile soil, the region is one of the least populated and best-preserved parts of the Brazilian Cerrado[10,13].

Field work was conducted in Jalapão State Park and surrounding areas, mainly around Mateiros (10°16'–10°43'S 46°08'–47°11'W). JSP was established in January 2001 and encompasses 1,580 km^2. Geomorphologically the region is characterised by high plains and 'Chapada' plateau, with altitudes of 400 to 640 m[10]. Vegetation is typical of the Cerrado region's core[13], and is dominated by extensive *campos sujos* (closed grasslands) and open savanna interspersed by *veredas* (wet grasslands with *Mauritia flexuosa* palms) and gallery forest. Climate is characterised by two well-defined seasons, a rainy period in October–April, and a dry one in May–September, with mean annual temperatures of 27–30°C[10].

Our records

The area was visited on 5 May–4 June 2002, during a bird survey of the Jalapão region. *M. octosetaceus* was recorded on five occasions along the rio Novo, which is characterised by clear water, with numerous rapids and waterfalls, many exposed rocks, and is c.50 m wide. The river originates in the Serra Geral do Tocantins and flows to the rio Sono, which in turn joins the rio Tocantins.

On 9 May, at c.09h30, one was observed flying 3 m above the surface of the rio Novo (at 10°32'S 46°43'W), 3 km downstream of the TO 255 road bridge. Here the river is calm and fringed by narrow gallery forest. On 13 May, again at 09h30, one was observed a few metres above the Cachoeira da Velha (10°19'S 46°53'W), and flew at least 150 m upstream, upon our approach. The Cachoeira da Velha lies on the rio Novo; the waterfall is 15 m high and 100 m wide. On 26 May, at 07h20, two were observed 300 m upstream of the Cachoeira da Velha, swimming 5 m from a small sandbank. On 29 May, at 06h20, following an exhaustive search, we found two in a rapid 15 m upstream of the waterfall. They flew off when we approached to c.100 m distance. At 14h30 on the same day, we found two foraging in small rapids 50 m upstream of the earlier observation (Fig. 2).

In the study area five other globally threatened species were recorded (species tape-recorded are marked, T, and those photographed, P): Dwarf Tinamou *Taoniscus nanus* (T), Crowned Eagle

Figure 2. Pair of Brazilian Merganser *Mergus octosetaceus* on the rio Novo (Vívian S. Braz)

Harpyhaliaetus coronatus (T), Hyacinth Macaw *Anodorhynchus hyacinthinus* (T), Yellow-faced Parrot *Amazona xanthops* (sight records and vocalisation heard) and Rufous-sided Pygmy-tyrant *Euscarthmus rufomarginatus* (T), in addition to three considered Near Threatened, Greater Rhea *Rhea americana* (P), White-banded Tanager *Neothraupis fasciata* (specimen now housed in the Universidade de Brasília collection, where awaiting accession number; P) and Coal-crested Finch *Charitospiza eucosma*[6](T). Based on the survey, there are 12 Cerrado endemics in the area[7,17]: Collared Crescentchest *Melanopareia torquata* (T), Large-billed Antwren *Herpsilochmus longirostris* (T), Helmeted Manakin *Antilophia galeata* (P), Curl-crested Jay *Cyanocorax cristatellus* (P), White-striped Warbler *Basileuterus leucophrys* (P), White-rumped Tanager *Cypsnagra hirundinacea* (P) and Black-throated Saltator *Saltator atricollis* (P), in addition to those already mentioned, namely *T. nanus*, *A. xanthops*, *E. rufomarginatus*, *C. eucosma* and *N. fasciata*.

Discussion

Due to the sedentary and territorial nature of *M. octosetaceus*[3,11], we consider that those observed in the vicinity of the Cachoeira da Velha were the same pair. Given the home range estimate of 9 km[19], and the distance of more than 40 km between the Cachoeira da Velha and the first observation, we assume the latter to have almost certainly involved a different individual.

With the latest two sightings, we saw the distinct ability of the species to dive and pursue fish, even in the strongest rapids, a few metres above the waterfall. They appear shy and able to detect approaching humans even over long distances. At such times the pair would alarm-call briefly before flying upstream low over the water, as previously described[11,20].

The rio Novo has a very narrow, occasionally non-existent, gallery forest along its course, surrounded by open cerrado or *veredas*. Our observations corroborate previous reports that the species is not exclusively found on forested rivers[18,20]. Downstream of the Cachoeira da Velha, the river is narrower and the broadest strip of forest is here, reaching at least 30 m wide, and may represent an important nest site[11,19].

The lack of clear boundaries to the JSP, and the absence of basic conditions essential for their enforcement, result in many direct threats to the local fauna, such as frequent burnings, illegal hunting and wild-animal traffic[1] (pers. obs.). Increasing and uncontrolled tourism is a threat to *M. octosetaceus*, which is very sensitive to human disturbance[19]. Intense traffic of 4-WD vehicles in the park, and frequent rafting on the rio Novo may also threaten the species' local preservation. Other, less intrusive, tourism activities such as birdwatching, photography, and hiking should be encouraged.

Expanding soybean culture and the construction of hydroelectric dams are considered the principal threats to *M. octosetaceus*[12,20]. The latter was considered responsible for a drastic reduction in the Argentine population[4]. In the Tocantins basin, two hydroelectric dams were constructed in the last five years: U.H.E. Serra da Mesa (1,800 km^2), at Minaçú, Goiás and U.H.E. Luiz Eduardo Magalhães (660 km^2), at Lajeado, Tocantins. In addition, three other large hydroelectric dams are planned[14].

The Brazilian government proposed a project for the transposition of water from the Tocantins basin to São Francisco basin, through the Jalapão region, including the interior of the JSP, in an attempt to minimise the social and economic impacts of droughts in north-east Brazil[10]. However, evaluations of technical, economical, social and environmental aspects concluded that the project was impractical[10]. The project envisioned the creation of six dams in the headwaters of the rios Novo and Sono, which would have affected all downstream areas and reduced their drainage to ecologically unsustainable levels. Disturbances that further change the river drainage, increase water turbidity or obstruct its channel endanger *M. octosetaceus*, which depends on rapids and clear water[12,19,20]. Alternative models to resolve the problems caused by droughts in north-east Brazil are therefore required.

The Jalapão region, including JSP and other locations in eastern Tocantins and western Bahia, have been listed as priority areas for Cerrado biodiversity conservation[9,10]. The new record of *M. octosetaceus* reinforces the biological importance of the region. In Brazil there are records of this species in just three conservation areas: Chapada dos Veadeiros National Park, with observations in 1987[20], Emas National Park, in 1990[8] (both of which lack recent published records) and Serra da Canastra National Park, where the *M. octosetaceus*' population is being monitored[19]. The occurrence of *M. octosetaceus* in another protected area increases the species' long-term survival prospects. Jalapão has several rivers suitable for *M. octosetaceus*. Efforts to determine occurrence in other areas, population estimates, and habitat and reproduction requirements are essential to evaluate the species' status and to guarantee its long-term conservation in Jalapão.

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Vívian S. Braz and Frederico G.R. França
Pós-Graduação em Ecologia, Departamento de Ecologia, IB, Universidade de Brasília, CEP 70910-900, Brasília, DF, Brazil. E-mail: vsbraz@unb.br.

Leonardo E. Lopes and Lemuel O. Leite
Pós-Graduação em Biologia Animal, Departamento de Zoologia, IB, Universidade de Brasília, CEP 70910-900, Brasília, DF, Brazil. E-mails: leo@uaimail.com.br and lemuelleite@yahoo.com.br.

Tarcísio L. S. Abreu, Mariana M. Vasconcellos and Santos F. Balbino
Departamento de Zoologia, IB, Universidade de Brasília, CEP 70910-900, Brasília, DF, Brazil. E-mail: tarcisioabreu@hotmail.com.