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Original Article

An avifaunal survey of middle Mongolian wetlands: Important Bird Areas and threatened species

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ABSTRACT

The objectives of this study were (a) to assess the avifaunal diversity variation among covered wetland habitats in middle Mongolia and (b) to identify threats that might endanger the avifauna at the these wetlands. Surveys were undertaken at 14 wetlands across middle Mongolia, including forest, steppe, and semidesert environments, consecutively in May, July, and September 2017. A total of 70 Important Bird Areas (IBAs) were identified in Mongolia; among these IBAs, 44 sites (68%) were based on wetland habitat, including our study sites. In this study, 192 bird species belonging to 94 genera for a total of 132,582 birds from 14 wetlands were recorded. Within total recorded species, 95 species (49.7% of total) of waterbirds belonged to six orders and accounted for 97% of total birds counted. Nine globally threatened bird (GTB) species were recorded; among these, common pochard (*Aythya ferina*) and swan geese (*Anser cygnoides)* were recorded with the greatest abundances 3,296 and 3,260, respectively. More livestock overgrazing and prolonged drought were natural phenomena recorded as crucial threats to the birds at the study sites. Our findings highlight the need for habitat management around estuaries.
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Introduction

Mongolian avifauna is moderately known, due to data collected by dedicated ornithologists over the last two centuries (Przewalskii 1876; Kozlov, 1930; Pevtsov 1951; Shagdarsuren 1961; Fischer 1970; Bold, 1973; Sumiya and Skryabin 1989; Buckton 1998; Fishpool 2001; Gombobaatar et al 2003). Yet, there are major gaps in our knowledge of the majority of Mongolian birds for their status, distribution, seasonal movements, and the use of their habitat particularly wetland species. Mongolia is located at the junction of three migratory flyways: East Asia–Australian, Central Asian, and East Africa–West Asia (Gombobaatar and Monks 2011). In addition, Mongolia houses a great diversity of wetlands that are utilized as important breeding and stopover sites for eastern Palearctic birds (Gombobaatar and Monks 2011). The country also supports important breeding sites for several globally threatened birds (GTBs), including, common pochard (*Aythya ferina*), white-headed duck (*Oxyura leucocephala*), swan goose (*Anser cygnoides*), white-naped crane (*Grus vipio*), great bustard (*Otis tarda*), saker falcon (*Falco cherrug*), and steppe eagle (*Aquila nipalensis*) (Ganbold et al 2017). Unfortunately, lack of data on their accurate distribution, breeding, and population trends has made it difficult to arrange firm conclusions about the conservation status of some species and to develop action plans for GTBs that are recorded in Mongolian estuarine habitats.

The Important Bird Areas (IBAs) network of Birdlife International is a global initiative aimed at identifying and protecting a network of critical sites for the conservation of the world's birds (Fishpool and Evans 2001). To date, a total of 70 IBAs have been identified in Mongolia, covering a total area of 7,906,557 ha or 5% of the national land area, of which 44 are wetlands (Batbayar et al 2009). Each of these sites meets one or more of the global IBA criteria developed by the Birdlife Partnership (Batbayar et al 2009). Sixty-nine sites meet Criterion A1 (in parentheses briefly state what this criterion is), because they regularly support significant

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populations of globally threatened species. Four sites meet Criterion A2 (in parentheses briefly state what this criterion is), because they support the Mongolian's only restricted-range bird species; thirty-nine sites meet Criterion A3 (in parentheses briefly state what this criterion is), because they support assemblages of species restricted to one of the biomes in Mongolia. Forty-three sites meet Criterion A4i and/or A4iii (in parentheses briefly state what these criteria are), because they hold large congregations of migratory waterbirds (Batbayar et al 2009). This is a reflection of the ease with which wetland sites can be delineated and the availability of survey data on waterbird populations compared with other species.

Wetlands are important conservation sites due to the extensive food chain and rich biodiversity they support (Getzner 2002). Almost half of the world's wetlands have disappeared in the last century because of agricultural and urban development (Shine and Klemm 1999). The wetland conservation convention RAMSAR entered into force in Mongolia on 8 April 1998. Mongolia currently has 11 sites designated as Wetlands of International Importance (Ramsar Sites), with a surface area of 1,439,530 hectares. These identified wetlands were critical habitat for a large number of avifaunal species, beyond traditional wetland species. However, the fast degradation of these estuarine ecosystems produces an urgent need to complete ecological studies to help develop important conservation programs in Mongolia.

Unfortunately, majority of these important wetlands in Mongolia are known not well. Only few wetlands out of wetland IBA sites, namely Khovsgol lake (MNO35) and Ogii lake (MNO42) were relatively well investigated (Kozlova 1932; 1975; Sumiya 2002; Tseveenmyadag and Bold 2005; Tsegmid and Uuganbayar 2006; Batbayar et al 2009).

We believe that our investigation was the first attempt to assess avifaunal diversity and the identification of threats for 14 largest wetlands at IBA sites in middle Mongolia. Therefore, this study was aimed to trace avifaunal diversity and identify crucial threats of study sites.

Material and methods

Study sites

Mongolia is the 18th largest country in the world by size at 1,564,116 km^2, and its climate is characterized by an extremely harsh continental climate. Our study sites were situated in three distinct climatic zones: (1) taiga and mountain forest climates, in the north; (2) steppe and mountain climates, centrally; and (3) semidesert and desert climates, in the south.

The surveys were conducted at 14 different wetlands across middle Mongolia (Figure 1). These 14 wetlands were characterized into different natural zones with forest steppe and forest–mountain steppe zones the most commonly recorded, ranging in size from 1,491 ha (MNO45: Ulzytyn Sang.Dalai) to 380,212 ha (MNO35: Khovsgol lake) (Table 1) (Batbayar et al 2009; Tserensodnom 1990,

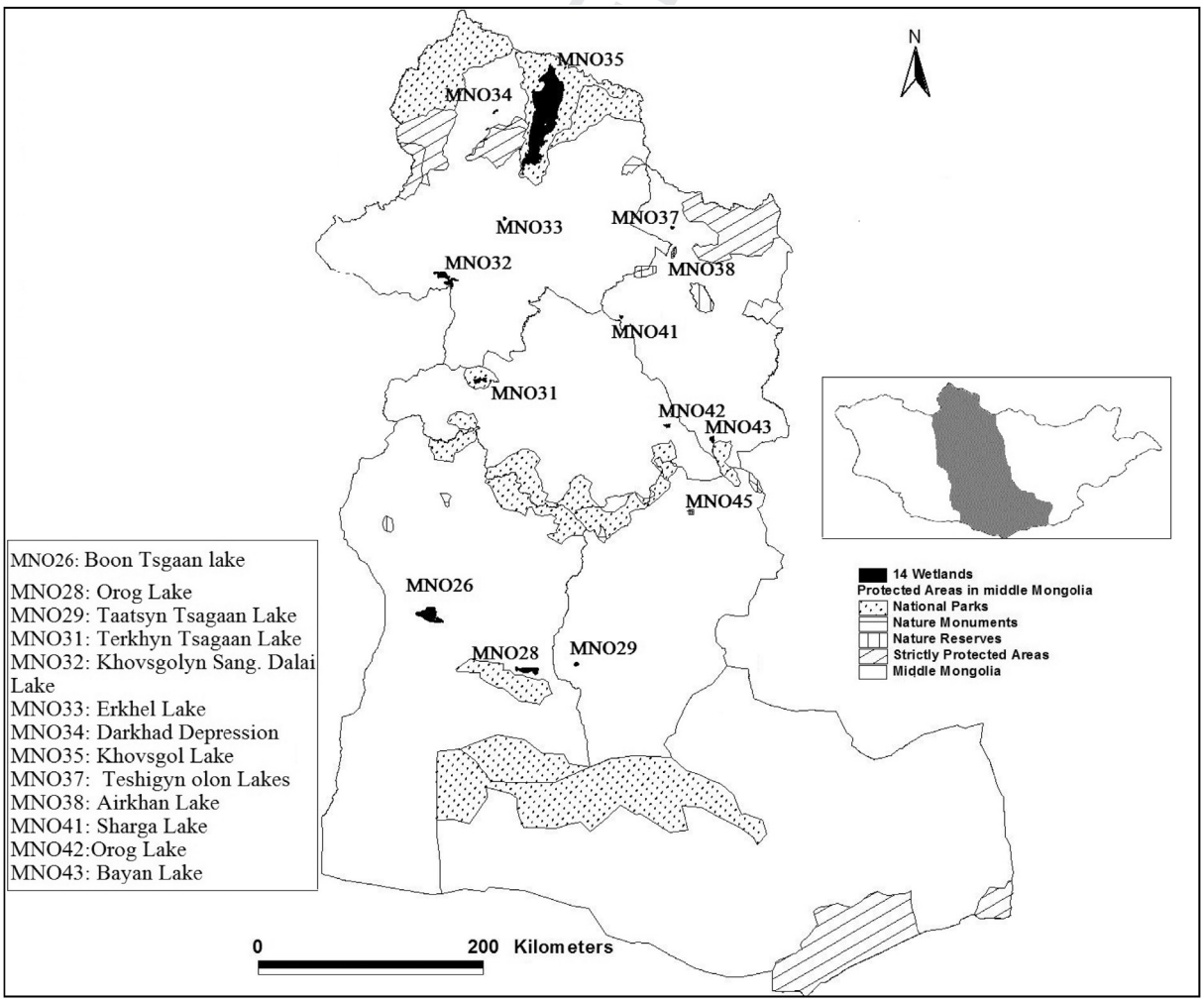

Figure 1. The location of the 14 wetlands surveyed across middle Mongolia, 2017.

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