

TAWNY EAGLE | *Aquila rapax*

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Conservation Status:	Endangered
Southern African Range:	Namibia, Botswana, South Africa, Zimbabwe, Mozambique
Area of Occupancy:	237,400 km ²
Population Estimate:	Up to 530 pairs, or up to 1,500 birds
Population Trend:	63% decline in the last two generations
Habitat:	Mopane, Kalahari and arid savannah woodlands
Threats:	Poisons, declining prey base, drowning in farm reservoirs, vehicle collisions

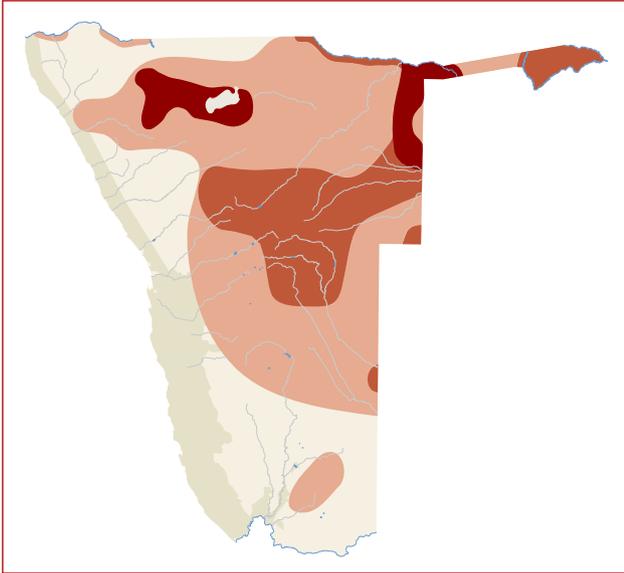


DISTRIBUTION AND ABUNDANCE

This species is widely distributed across West and East African woodland savannahs, in north-west Africa and as far east as India (del Hoyo *et al.* 1994). It is absent from Africa's tropical rainforests and reappears in central and southern Africa, extending into arid Karoo regions of South Africa (Brown *et al.* 1982, Boshoff *et al.* 1983). This eagle has decreased in numbers in Namibia (Brown 1991) and South Africa (Boshoff *et al.* 1983), and has largely contracted its range into protected areas such as Etosha, Chobe, and Kruger national parks (Steyn 1982, Tarboton & Allan 1984, Simmons 1997a). However, it is more widespread than the Bateleur *Terathopius ecaudatus*, occurring in small numbers in both Namibia and South

Africa outside protected areas, and as far south as 32° S in the grassy Karoo (Simmons 1997a). In Namibia, it is largely absent from the south and west, thinly distributed in eastern farmlands, more frequently seen in central farmlands (reporting rate during the SABAP1 period of approximately 20%), and in Etosha National Park (reporting rate greater than 27%) and is patchily distributed through northern and north-eastern Namibia (Simmons 1997a). The area of occupancy in Namibia is 237,400 km² (Jarvis *et al.* 2001).

About 5,000 pairs are thought to occur in southern Africa (Simmons 1997a), including 800 pairs in South Africa (Barnes 2000c) and approximately 20 pairs in southern Mozambique (Parker 1999). The size of the Namibian



population has not been established to date, but available information on nesting densities allows estimates of the present population size in Namibia and how it has changed over time. Nesting density varies according to soil type from 0.83 pairs per 100 km² on Kalahari sands in Zimbabwe to 1.2 pairs per 100 km² on mica-schist farmland in Namibia (Hustler & Howells 1989, Brown 1991). In Etosha National Park, 21 nests sites are known in 11,400 km² of suitable habitat, resulting in a density of 0.2 pairs per 100 km² (TO Osborne unpubl. data). In non-conservation areas, including communal lands, Tawny Eagles occur at a density of 0.1 to 0.24 pairs per 100 km² (Brown 1991, Osborne *et al.* 2001). They are heavily persecuted in commercial farmlands and one study found that populations declined by 89% in less than 10 years (Brown 1991); densities changed from 1.2 pairs per 100 km² in 1983 to 0.24 pairs per 100 km² in 1990 (Brown 1991). Extrapolating these density estimates to the Tawny Eagle's area of occupancy in different land-use areas (Jarvis *et al.* 2001), population numbers presently total 63 pairs in conservation areas, between 102 and 250 pairs on communal areas and 250 pairs on freehold lands. In 1983, freehold lands would have supported about 1,250 pairs. Namibia thus holds about 415 to 563 pairs, or a maximum of about 1,500 individuals. Assuming (probably unrealistically) that no declines have occurred in conservation areas or on communal lands, the total population in 1983 would have numbered 1,532 pairs, compared to today's population of up to 560 pairs – a decline of at least 63% in the last three decades.



ECOLOGY

The Tawny Eagle is found mainly in open woodland savannah, especially Mopane (34% reporting rate) and dry and mesic Kalahari woodlands (reporting rates average 22%), and is rarely found in miombo woodland (Tarboton &

Allan 1984, Simmons 1997a). Its presence in the largely tree-less Karoo and other grassland areas is due to its ability to adapt to man-altered environments, breeding on electricity pylons and in tall alien trees (Boshoff *et al.* 1983, Tarboton & Allan 1984). Where it breeds, large Knob-thorn *Acacia nigrescens* are often used (92% of 88 identified nest trees in north-east South Africa) in preference to most other trees (Tarboton & Allan 1984).

Egg-laying is mainly in April to June (91% of 103 clutches) with one record for March, seven for July and one for August, the last two months probably being replacement clutches. It lays one or two eggs, with 67% of clutches being two eggs (n=69) (Brown *et al.* 2015). Nestling productivity in Namibia was 0.58 young per pair per year (n=24) at the end of the fledgling period and 0.42 at the end of the post-fledgling dependence period, i.e. a 23% mortality during the post-fledgling dependence period. During a six-year study period, despite high mortality in adult birds (declining from seven to two pairs), there was no recruitment of new birds to the population.

All dead birds recovered (five radio-collared birds) had died of strychnine poison used by farmers for predator control. Because of the high use of poisons and the large areas over which young birds range, they are probably more vulnerable to being poisoned than adults. If mortality rates due to poisoning persist at the same level after independence as during the dependence period, all young birds would die within a year of becoming independent. There would thus be no recruitment to the breeding population (Brown 1991). This is probably the reason why birds in protected areas have also shown a slow decline in numbers – as older birds die there are not sufficient surviving young birds to replace them. Elsewhere in southern Africa, nestling productivity ranges from 0.44 to 0.65 young per pair per year (Steyn 1973, Tarboton & Allan 1984, Hustler & Howells 1986). Clutches of two are more productive (0.81 young per pair per year) than clutches of one (0.50 young per pair per year) (Tarboton & Allan 1984).

The Tawny Eagle takes a wide spectrum of prey. It scavenges at carcasses of medium to large animals and captures live mammals, birds, reptiles, amphibians and fish. In South Africa's lowveld reserves, where more large game is available, 65% of monitored prey items were scavenged bones of ungulates. The remainder comprised birds (22%), mammals (12%) and reptiles (1%) (Tarboton & Allan 1984). It is known to take nocturnal mammals, such as spring hares and genets, and an observation of a Tawny Eagle drinking in full moonlight suggests that the species is opportunistically active at night to take such prey (Steyn 1982). There are no published records of its diet for Namibia.



THREATS

The scavenging and hunting behaviours of this species make it particularly vulnerable to collateral impacts of farmers using poisons for predator control. Like the Bateleur and non-colonial vultures, it finds and feeds on both large carcasses and small food items. These species are thus at risk from poisoned carcasses and small poisoned baits (Steyn 1982, Tarboton & Allan 1984, Brown 1988a) and from direct persecution (shooting and gin trapping) on central Namibian farmland (Brown 1991). Birds found poisoned were located up to 18 km from their active nest sites (Brown 1991); thus, like Bateleurs, they are at risk from even a small proportion of farmers who use strychnine in Namibia (Brown 1991). Farmers frequently use poisons on the edge of conservation areas such as Etosha National Park (Komen 2002), regularly killing vultures and some Tawny Eagles that undoubtedly come from within the park (P Bridgeford, RE Simmons, TO Osborne unpubl. data).

There have been two important developments in the past 10 years with respect to poisoning on farmlands. The Veterinary Council of Namibia resolved that veterinarians should no longer prescribe strychnine poison, state vets stopped doing so and strychnine is no longer imported into Namibia; and large areas previously under domestic stock have been converted to wildlife and tourism. As a result there has been a decline in the number of poisoning incidents reported resulting from collateral poisoning of predators (CJ Brown, L Komen pers. obs.).

Since 2013, a major new threat has arisen, currently confined to the north-east of Namibia and particularly the Zambezi region. Commercial poachers of mainly elephants, but also buffalo and giraffe, have started poisoning carcasses of the animals they poach, specifically to kill as many vultures as possible, to reduce the likelihood of spiraling vultures alerting the wildlife authorities to their activities (see under White-backed Vulture). While such poisoning is particularly devastating to colonial vulture species, it also kills territorial adult Tawny Eagles, Bateleurs and non-colonial vulture species, and young non-territorial birds that may gather in larger numbers than adults.

Other causes of mortality include drowning in steep-sided farm reservoirs, where the Tawny Eagle is the second most frequently killed eagle in arid areas of South Africa (Anderson *et al.* 1999), and collisions with motor vehicles, when the birds are attracted to road-killed carrion (Oatley *et al.* 1998). Human interference, through egg or chick collecting, accounted for 45% of 20 known breeding failures in north-east South Africa (Tarboton & Allan 1984).



CONSERVATION STATUS

This species is classified as *Endangered* because of a suspected decline in the Namibian population of at least

63% in the last 30 years, a period equalling two generations (Steyn 1982). The Tawny Eagle also has a small population of about 1,500 individuals in Namibia, which, given its decline, also qualifies it for the *Endangered* category. As a long-lived, slow-maturing and slow-breeding species that produces less than 0.5 fledglings per pair per year on average (Brown 1991), this species will probably continue to decline, particularly because of the high incidence of poisoning. It is no longer common in large protected areas such as Etosha National Park (TO Osborne unpubl. data), thus conservation areas alone are insufficient to protect it. Additionally it should be accorded *Specially Protected* status in Namibia.

It is not classified as globally threatened (IUCN 2012a), but in South Africa it is classified as *Vulnerable*, because it is thought to have lost 20% of its population in the last three generations through poisoning and direct persecution (Barnes 2000a, Taylor *et al.* in press). Given the declines in Namibia, this may be an underestimate and requires reappraisal.



ACTIONS

The Action Plan for the Cape Vulture *Gyps coprotheres* and the protocol to help address deliberate poisoning of carcasses by commercial poachers (see under White-backed Vulture) contain the key elements required to address the issue of poisoning in Namibia. The most important actions are:

- Ensure that the Parks and Wildlife Bill specifically legislates against the use of all poisons, pesticides and toxins for the killing of predators and all wildlife in Namibia, and that penalties are sufficiently severe to be effective.
- Prepare and widely distribute up-to-date information on scavenging species, the fact that the use of poisons is illegal, including the penalties for transgression.
- Provide information and training to relevant law enforcement and investigative agencies and individuals on the protected status of eagles and vultures, the fact that poison use for killing protected wildlife is illegal, obligations of suppliers under the law and 'scene of crime' training at poisoning events.
- Tighten procedures around the sale of toxic substances and specifically make it obligatory to record identification details of all purchasers, their intended use, and to provide information on the illegal use of these substances with resultant penalties for misuse.

To address other threats and information deficiencies, it is recommended that more specific information on breeding distribution, breeding success, movement patterns and survival of adult and particularly young birds be undertaken. The work of the NamPower/NNF power line programme should be continued and expanded through greater farmer and public involvement.