9. FAUNA

As discussed in Chapter 7, the study area includes a range of different vegetation types. In addition, it encompasses three major topographic units, namely the coastal plain to the south-east; an eastern extension of the Cape Folded Mountains represented by the Zuurberg range; and an extra-plateau or middle lands region, north-west of the mountain range. The topographic and botanical diversity of the region contributes towards the faunal diversity of the area.

9.1. Avifauna

The avifauna of the study area has been well documented since the preliminary surveys of Skead (1967), and was surveyed systematically during fieldwork for the Atlas of Southern African Birds (Harrison *et al.*, 1997). In addition, a revised Red Data Book for South African birds has recently been published (Barnes, 2000). A list of bird species which have been reported to occur within the study area is included within Appendix E.

Threatened and near-threatened species which have been recorded to occur within the study area are listed in Table 9.1 below (Barnes, 2000). Some of these species are known to breed within the study area, and other species are only occasionally sighted in this area.

Table 9.1: Threatened and near-threatened bird species reported to occur within the study area

Threatened Species	Near-threatened Species
Cape Vulture	White Pelican
Lesser Kestrel	Black Stork
African Finfoot	Yellow-billed Stork
White-bellied Korhaan	Greater Flamingo
Martial Eagle	Lesser Flamingo
Blue Crane	Secretary Bird
Kori Bustard	Crowned Eagle
Stanley's Bustard	Black Harrier
Ludwig's Bustard	Peregrine Falcon
	Lanner Falcon
	Blue Korhaan
	Black-winged Plover
	Half-collared Kingfisher
	Knysna Woodpecker
	Bush Blackcap
	Melodious Lark

There are some other species which, although not mentioned in Barnes (2000), may prove important in the study area. These include the White Stork, the Grey Heron and the Black-headed Heron (Taylor *et al.* 1999).

9.2. Large Mammals

The current distribution of large mammals within the study area has historically been influenced by human interference. Hunting has eradicated species such as the lion (*Panthera leo*) and the wild dog (*Lycaon pictus*), which were perceived as a threat to Mankind and/or agricultural practices. In addition, habitat loss or exclusion from lands by Man, have resulted in declines in other species, such as the buffalo (*Syncerus caffer*) and oribi (*Ourebia ourebi*). Direct exploitation has also suppressed species such as the elephant (*Loxodonta africana*) and mountain zebra (*Equus zebra zebra*).

Those species which have retained viable populations outside of protected areas include those animals associated with dense woodlands, such as kudu (*Tragelaphus strepsiceros*), bushbuck (*Tragelaphus scriptus*) and bushpig (*Potamochoerus porcus*). Such habitats are found primarily in the thickets south-east of the Zuurberg mountain belt, and in forested valleys and thicket within the mountain range. The remoteness of much of the mountain fynbos, as well as its low agricultural potential has limited impacts on large mammal species, such as the grey rhebok (*Pelea capreolus*) and grysbok (*Raphicerus melanotis*). However, these species tend to occur in relatively low densities.

The more arid, karroid area to the north-west of the mountain belt has been extensively utilised for livestock grazing. Those indigenous large mammals species which still occur naturally are species which may have benefited directly from this land use, such as the medium-sized carnivores (e.g. the black-backed jackal (*Canis mesomelas*) and caracal (*Felis caracal*)), and the smaller, low density ungulates, such as the grey duiker (*Sylvicapra grimmia*) and grysbok. The larger herbivores, such as the eland (*Taurotragus oryx*), red hartebeest (*Aleclaphus buselaphus*) and black wildebeest (*Connochaetes gnou*) only occur where they have been reintroduced.

9.3. Small Mammals

Insufficient information exists to determine the status of many of the small mammal species within the study area (e.g. the least dwarf shrew (*Suncus infintesimus*), lesser woolly bat (*Kerivoula lanosa*), Swinny's horseshoe bat (*Rhinlophus swinnyi*) and the water rat (*Dasymys*

incomtus)). Most small mammal species enter the study area from either the arid central and western half of the southern African region, or along the more moist eastern coastal area. In both cases, this area lies at the extreme of their range. Many of the small mammal species which occur within the study area have specific habitat requirements.

Although the smaller mammal species (in particular the insectivores, bats and rodents) have been less impacted upon by human activities, habitat change as a direct consequence of human intervention remains a threat for species, particularly those with limited distribution ranges or specific habitat requirements.

9.4. Herpetofauna

The herpetofauna (reptiles and amphibians) of the Eastern Cape is rich in species. Reptiles which occur in this area include tortoises, lizards and snakes. Tortoises are particularly well represented in the Eastern and Western Cape. Of the tortoise species, only the common padloper (*Homopus areolatus*) is intolerant of arid conditions, and is vulnerable to habitat destruction.

Squamates (i.e. chameleons, geckos and lizards) are also well represented in the study area. A number of lizard species are associated with rocky outcrops, and these may occur throughout the study area. Most squamates found within the study area are associated with the arid regions to the north and fynbos to the east, with few (e.g. the spotted gecko (*Pachydactylus maculatus*)) entering from the wetter eastern coastal region. Endemic species, such as Tasman's girdled lizard (*Cordylus tasmani*) and the southern dwarf chameleon (*Bradypodion ventrale ventrale*), are both likely to occur within the study area and would be restricted to the densely wooded vegetation in the Algoa region.

Snakes tolerate a wider range of environments than most lizards, and may be found in almost all habitats, from hyper-arid deserts to moist forests. As snakes focus on specific prey types, their distribution usually reflects that of their principle and preferred prey, rather than climatic or vegetation conditions.

Due to the constraints imposed on their distribution by an aquatic life stage, amphibians are typically found in moist environments. The higher, and more predictable rainfall along the coastal belt and in the mountainous regions, suggests that most amphibians would occur in these areas. Of the approximately 20 frog species which may occur within the study area, only four or five are associated with the arid region to the north. Of these, only two species,

namely the giant bull frog (*Pyxicephalus adsperus*) and tremolo sand frog (*Tomopterna cryptotis*), are independent of permanent surface water, making use of ephemeral pools and pans. Species such as the Cape sand frog (*Tomopterna delalandii*) and snoring puddle frog (*Phrynobatrachus natalensis*), enter this area from the fynbos region to the west.

9.5. Invertebrates

Limited information is available regarding the distribution and habitat requirements of invertebrate animals. Of all the invertebrates, the insects are possibly the most conspicuous and better known. Of these, butterfly species are probably the most studied. Butterfly species, which have been reported to occur within the study area include the rare *Aloeides clarki* and *Lepidochrysops bacchus* (Henning & Henning, 1989). *Aloeides clarki* is endemic to the lower Coega and Sundays River valleys.

The flight-less dung beetle is conserved within the AENP.

International studies have established that the major cause of decline in insect populations is related to habitat destruction, or the loss of a particular host plant (Henning and Henning, 1989).

9.6. Potential Impacts

As the distribution of fauna within the study area is fairly uniform, potential impacts associated with the construction and operation of the proposed Transmission line between the Poseidon Substation and the Grassridge Substation will not differ substantially between corridor 1 and 2.

9.6.1. Avifauna

The primary impacts on avifauna associated with the construction and operation of a Transmission line include habitat destruction or alteration, and electrocution and collisions. The existing Transmission lines along the majority of the route alignment within corridor 1 have an existing impact within this area. The construction of a new Transmission line between these two lines is not anticipated to add significantly to the existing impact.

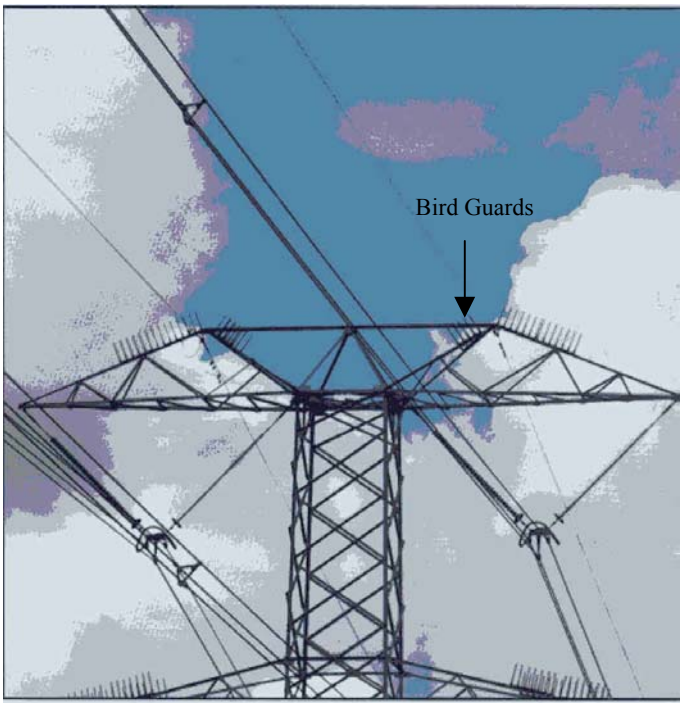
The construction of a Transmission line within corridor 2 will result in a new Transmission line corridor within this area, and thus the potential impact along this corridor would be more significant.

Species which have been recorded as being sensitive to habitat destruction and human disturbance include Stanley's Bustard, the Kori Bustard and the Secretary Bird. In addition, small birds, such as the kingfisher, woodpecker, lark and blackcap, are susceptible to changes in the local habitat, including the clearing of vegetation. However, with the implementation of Eskom's Standard Practices in terms of vegetation clearance in sensitive areas, impacts in terms of habitat alteration will be small-scale, and will have no significant influence on these populations.

All Transmission lines in South Africa are fitted with one or more earth wires for protection against lightening. These wires are thinner than the conductors, and are therefore less visible to flying birds. A number of bird species occurring within the study area have been reported to be highly susceptible to collisions with Transmission lines including the Cape Vulture, the Martial Eagle, the Blue Crane, the Kori Bustard, Stanley's Bustard and Ludwig's Bustard. The potential impacts on these species are discussed in more detail below.

Eskom have identified bird collisions as a major impact on both the environment and the operation and reliability of Transmission lines. Therefore, appropriate mitigation measures have been developed in the form of different types of bird diverters (e.g. flappers; Photograph 9.1). Investigations regarding the effectiveness of these diverters have indicated an approximate 80% reduction in bird collisions with lines fitted with these diverters (Mail and Guardian, June 2000). In addition, different types of bird guards (Photograph 9.2) have been developed in order to prevent roosting on towers, and have been shown to effectively reduce the incidents of bird induced line faults.

Photograph 9.1: Bird diverters have been developed and have effectively reduced the incidents of bird collisions with Transmission lines



Photograph 9.2: Bird guards have been developed in order to prevent roosting on towers, and have been shown to effectively reduce the incidents of bird induced line faults

- *Cape Vulture:*

  The Cape Vulture has only been sighted occasionally within the study area, particularly in the Cookhouse area. Fatal encounters with Transmission lines are well documented for the Cape Vulture (Van Rooyen and Piper, 1997; Van Rooyen, 1999). Although the impact will be confined to the immediate route of the Transmission line, a decline in the Cape vulture population is an impact of national significance. With the implementation of appropriate mitigation measures, the impact associated with the proposed new Transmission line is anticipated to be of moderate significance in the event of these birds frequenting the area.

- *Martial Eagle:*

  This species holds large territories, with neighbouring pairs 12 to 24 km apart. Numbers outside protected areas have declined, apparently throughout South Africa. Direct persecution and poisoning are the main threats, but electrocution and collisions with Transmission lines are also significant sources of mortality. In some areas, however, this species is known to nest on towers (Barnes, 2000), which has greater implications on the transmission line than it does on the bird itself. Due to the large territories of these birds, a long-term impact for regional populations of this species could be anticipated as a result of the construction of the proposed Transmission line. With the implementation of appropriate mitigation measures, this impact is anticipated to be of moderate significance.

- *Blue Crane:*

  This species has shown a rapid decline in numbers over parts of its range during the past 20 years, and has been shown to be at risk from collisions with Transmission lines, particularly in the Karoo area, where the problem is currently under investigation (McCann, 2000). Road count data suggest some seasonal movements, with higher numbers in the Karoo during winter (Young and Harrison, 1998-99). Although the impact will be confined to the immediate route of the Transmission line, a decline in the Blue Crane population is an impact of national significance. With the implementation of appropriate mitigation measures, this impact is anticipated to be of moderate significance.

- *Kori Bustard:*

  Collisions with overhead Transmission lines are reported less frequently for this bird species than in other species, but this may be simply because Kori Bustards occur at very

low densities in most areas (Anderson, 2000). A long-term impact for regional populations of this species is anticipated as a result of the construction of the proposed Transmission line. With the implementation of appropriate mitigation measures, this impact is anticipated to be of moderate significance.

- *Stanley's Bustard:*

  Collisions with Transmission lines have been reported for this species (Allan, 1997; Barnes, 2000). A long-term impact for regional populations of this species is anticipated as a result of the construction of the proposed Transmission line within corridor 2. With the implementation of appropriate mitigation measures, this impact is anticipated to be of moderate significance.

- *Ludwig's Bustard:*

  This species is highly susceptible to collisions with overhead lines, and this is considered to be the single most important threat to its survival. The losses observed could lead to a long-term population decline, which would be very difficult to reverse in a species with an intrinsically low rate of population increase (Anderson, 2000).

  A long-term impact for regional populations of this species is anticipated as a result of the construction of the proposed Transmission line within corridor 2. With the implementation of appropriate mitigation measures, this impact is anticipated to be of moderate significance.

- *White Storks:*

  In Europe, electrocution and collisions with overhead wires are among the major causes of death in White Storks (Fiedler, 1999). South Africa is a signatory to the Convention on the Conservation of Migratory Species, and The Agreement on the Conservation of African-Eurasian Migratory Waterbirds includes the White Stork as one of the species of concern (Müller-Helmbrecht and al-Janabi, 1999). Thus we are committed to taking appropriate precautions for these birds.

  An impact of moderate probability, with moderate significance for regional populations is anticipated for this species as a result of the construction of the proposed Transmission line within corridor 2.

- *Flamingos:*

  Flamingos of both species undertake regular long-distance movements (Taylor *et al.*, 1999; Underhill *et al.*, 1999). The great fluctuations in breeding success make incidental mortality, such as collisions with overhead lines, potentially important to the population (Anderson, 2000).

  Impacts on flamingos associated with the construction of the proposed Transmission line within corridor 2 is anticipated to be an impact of high significance on a national level. The probability of such an impact is considered to be moderate.

- *Secretary Birds:*

  Due to their sparse distribution within the Eastern Cape, accidental mortality could rapidly eliminate local breeding birds of this species.

  The impact associated with the construction of the proposed Transmission line within corridor 2 on this species is a potentially highly significant impact on a regional scale, but with a low probability of occurrence.

9.6.2. Large Mammals

- *Electrocution:*

  Although electrocution is a major impact associated with avifauna, this is not likely to impact on large mammals, as the lowest point of the conductors is approximately 10 m above the ground surface in normal weather conditions.

- *Animal Movements:*

  Movement patterns of large mammals (such as elephants in the AENP) result in the clearing of large patches of vegetation. Large mammals have been reported to make use of cleared areas as walkways, as these areas enable ease of movement. Therefore, the clearance of a servitude and the construction of access roads will open up the habitat, and this is likely to attract certain species to these areas. This could result in the over-utilisation of the vegetation in these localised areas, and the associated vegetation degradation and erosion, thus reducing the available food source in the long-term. This impact is anticipated to be localised, of a long-term nature and of low significance, provided that appropriate mitigation measures are implemented.

* *Mitigation:*

As discussed in Chapter 7, standard practices implemented by Eskom (and included as part of all contracts) include a number of mitigation measures which will limit the clearance of vegetation and construction of access roads in sensitive areas. This will limit the extent of open areas created, thus ameliorating any impacts associated with over-exploitation of particular areas. In the case of corridor 1, existing access roads to the existing Transmission line servitude could be used to minimise cut-lines and additional access roads.

9.6.3. Small Mammals

- *Opening up of Habitat and Increased Predation Levels:*

  The construction of the proposed Transmission line could result in limited opening-up of the vegetative cover during the construction phase. The opening up of existing vegetated areas, thereby creating corridors along which animals can move, may result in increased predation levels on small mammals (and other fauna) along these corridors by predators such as the black-backed jackal, the caracal, smaller species such as the genets and mongooses, as well as raptors (birds of prey). This impact is anticipated to be localised, of a long-term nature and of moderate to low significance provided that appropriate mitigation measures are implemented.

  * *Mitigation:*

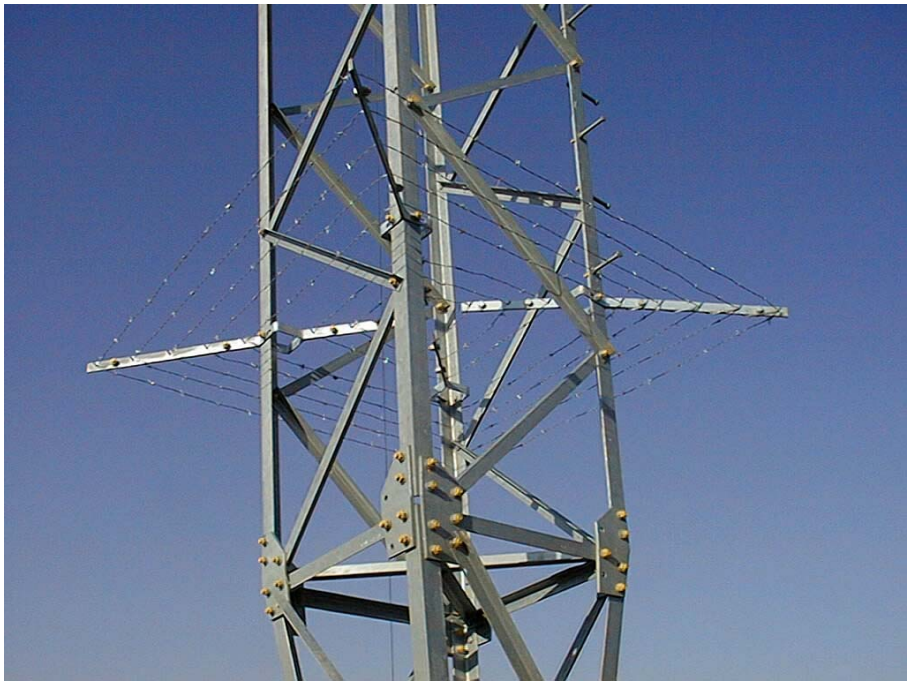
  Limitation of the clearance of vegetation and construction of access roads in sensitive areas, as previously discussed, will limit with the opening-up of habitats, thus ameliorating the above impacts.

- *Electrocution:*

  Monkeys have been reported to scale towers, and in the event of them inadvertently touching a conductor, have been electrocuted.

  * *Mitigation:*

  The use of climb guards a short distance from the ground have been included within tower design in order to prevent animals and humans from scaling the tower, thus effectively minimising the incidences of electrocution (Photograph 9.3).



Photograph 9.3: Climb guards installed a short distance from the ground have been included within tower design in order to prevent animals and humans from scaling the tower

9.6.4. Reptiles

- *Habitat Destruction:*

  Excessive habitat destruction during construction could reduce the amount of habitat available, especially for the Albany Adder in the Grassridge area and the flight-less dung beetle within the AENP. This impact is anticipated to be localised, of a long-term nature and of low significance provided that appropriate mitigation measures are implemented.

  * *Mitigation:*

    Through the limitation of vegetation clearance and access road construction in sensitive areas, the above impact can effectively be ameliorated.

9.6.5. Invertebrates

- *Habitat Destruction:*

  Excessive habitat destruction during construction could reduce the amount of habitat available, especially for the two rare butterfly species reported to occur within the study

area. This impact is anticipated to be localised, of a long-term nature and of low significance provided that appropriate mitigation measures are implemented.

* *Mitigation:*
  Through the limitation of vegetation clearance and access road construction in sensitive areas, the above impact can effectively be ameliorated.

9.7. Conclusions and Recommendations

Impacts on fauna as a result of the construction of the proposed Transmission line are not anticipated to differ within the study area, and are, therefore, similar for both corridor 1 and corridor 2.

Potential impacts have been identified for terrestrial mammals, including electrocution (particularly monkeys), impacts on animal movement patterns, and increased predation levels as a result of the "opening-up" of the habitat. The majority of these can be mitigated through the implementation of Eskom's standard practices for Transmission line construction, operation and maintenance (e.g. the installation of bird diverters, guards, etc, where required).

Appropriate management measures should be detailed within an Environmental Management Plan for construction, operation and maintenance of the Transmission line.