

Secretarybird, *Sagittarius serpentarius*



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1. STATUS REVIEW

1.1 Taxonomy: Animalia

Phylum: Chordata

Order: Accipitriformes

Family: Sagittariidae R. Grandori and L. Grandori, 1935

Genus: Sagittarius Hermann, 1783

Species: Sagittarius serpentarius

1.2 Distribution and population status:

1.2.1 Global distribution: Whilst the Secretarybird occurs throughout Sub-Saharan Africa, the survival blueprint on the species focuses on Kenya and not the whole range of the species.

Country	Population estimate (plus, references)	Distribution	Population trend (plus, references)	Notes
Sub-Saharan Africa (Kenya; Senegal; The Gambia; Guinea Bissau; Mali; Burkina Faso; Ghana; Togo; Benin; Niger; Chad; Sudan; South Sudan; Nigeria; Cameroon; Central African Republic; Ethiopia; Somalia; D R Congo; Uganda; Mauritania; Tanzania; Angola; Zambia; Malawi; Mozambique; South Africa)	6700 – 67000, http://www.birdlife.org	Africa	Decreasing, http://www.birdlife.org	

1.2.2 Local distribution:

Country	Region / province	Site	Level of Protection	Population size	Reference(s)	Notes
Kenya	South Kenya	NA	protected by the Kenya Wildlife Act 2015	Unknown	(Kenya Wildlife Bills, 2015; McClure et al., 2018)	
	West Kenya	NA	protected by the Kenya Wildlife Act 2015	Unknown		
	North & East Kenya	NA	Protected by the Kenya Wildlife Act 2015	Unknown		

1.3 Protection status:

Protected by the Kenya Wildlife Act 2015, which protects it from any form of trade or consumption. IUCN lists the species as vulnerable.

The species is widespread in southern and eastern Kenya within the protected national parks and national reserves but also occurs in areas with little or no protection like corridors between parks and community lands.

1.4 Ecology, behaviour and habitat requirements:

The species inhabits grasslands, ranging from open plains to lightly wooded savanna, but is also found in agricultural areas and sub-desert (Ferguson-Lees and Christie 2001), with up to 50% of recorded individuals in the Fynbos biome in winter being found in transformed environments, such as farm lands or forested areas now converted to grasslands (Hofmeyr *et al.* 2014). It ranges from sea-level to 3,000 m. Juveniles can move a long way after leaving their nest site but will return to their natal area (Retief and Smit-Robinson 2014). A variety of prey is consumed, primarily insects and rodents, but also other mammals, lizards, snakes, eggs, young birds and amphibians. Breeding occurs throughout the year and the species typically nests in a flat-topped *Acacia* or other thorny tree, where it constructs a flattened stick structure (Ferguson-Lees and Christie 2001). The species typically lays 2 eggs, and in rare cases 3 may be laid, however it is likely in this case that the third egg will not survive.

1.5 Threat analysis:

Threat	Description of how this threat impacts the species	Intensity of threat (low, medium, high, critical or unknown)
Habitat loss	<ul style="list-style-type: none"> Excessive burning of grasslands thus suppressing population of prey species Intensive grazing of livestock degrading habitats which were once optimal Change in utilization of land type through conversion into farmland thus thinking optimum range for the species 	Critical
Predation on chicks	<ul style="list-style-type: none"> Crows and other scavengers which can take the chicks 	Medium
Persecution	<ul style="list-style-type: none"> Species captured for trade, though numbers are low Direct hunting of nests Indiscriminate poisoning at dams not targeted at the birds but with adverse effects Effects of adverse climate change like flooding and drought 	Medium
Infrastructure development	<ul style="list-style-type: none"> Huge infrastructural developments like superhighways and railways. These disturb the habitat as such infrastructures cut across habitats and are fenced off and bring in the secondary effect of expansion of settlements at unprecedented levels and thus poaching both faunal and floral 	Critical

1.6 Stakeholder analysis:

Country	Stakeholder	Stakeholder's interest in the species' conservation	Current activities	Impact (positive, negative or both)	Intensity of impact (low, medium, high or critical)
Kenya	<ul style="list-style-type: none"> Conservation managers for County of Taita Taveta Kenya Wildlife Service Kenya Forest Service 	<ul style="list-style-type: none"> Important species for heritage and species diversity within the local area a dry lowland Acacia- 	<ul style="list-style-type: none"> Direct conservation efforts through the Kasigau reducing emissions from deforestation and forest degradation in 	Mostly positive, rarely negative... but bottlenecks to effective management of the habitat	Critical

	<ul style="list-style-type: none"> • Wildlife Works limited • ZSL • Other NGO's e.g. Tsavo Trust, Chyulu Carbon Project, David Sheldrick Foundation 	Commiphora forest	<ul style="list-style-type: none"> • developing countries (REDD+) • Community Awareness outreach • Monitoring through transects and ranger and community scouts to quantify trends 	are still prevalent	
	<ul style="list-style-type: none"> • Government, both local and central 	<ul style="list-style-type: none"> • The government through Kenya Wildlife Services has the mandate to protect all species • As a form of revenue generation through tourism 	<ul style="list-style-type: none"> • Support in ensuring land tenure rules are obeyed and encroachment is discouraged • Development of conservation-friendly policies 	Positive	Critical
	<ul style="list-style-type: none"> • Scientists and Researchers from KWS, Wildlife Works, Save the Elephant Trust, Tsavo Trust, and local universities 	<ul style="list-style-type: none"> • Species conservation and as a way of influencing policy through studies conducted so that the species can be conserved better 	<ul style="list-style-type: none"> • Research on species diversity, and range ongoing 	Positive	High
	<ul style="list-style-type: none"> • Community Awareness and Outreach Officers both from local NGO's and the County Government 	<ul style="list-style-type: none"> • Charisma of species will assist in driving the message for conservation of the wider area where the species occurs 	<ul style="list-style-type: none"> • Education and demonstration to school groups, community members and holding FGD's ongoing 	Positive	Critical
	<ul style="list-style-type: none"> • Agricultural Extension Officers 	<ul style="list-style-type: none"> • Conservation within protected areas will ease pressure and human-wildlife conflicts with locals who farm near protected areas 	<ul style="list-style-type: none"> • Initiatives for SMART agriculture, planting trees and development of organic greenhouses an ongoing effort 	Experiments ongoing but mostly positive	High

	<ul style="list-style-type: none"> • Collaborations with external institutions like Kenya Wildlife Service, ZSL, Tsavo Trust, Save the Elephant Foundation, Earthwatch Institute and NGO's 	<ul style="list-style-type: none"> • High Conservation Value species of interest to specific conservation groups • An indicator species in terms of monitoring habitat use and health 	<ul style="list-style-type: none"> • Research grants seeking to further research • Collaboration with Earthwatch institute for a SMART agriculture solution to reduce conflict especially with elephants • Collaboration with ZSL for species conservation and mapping how communities utilize available resources 	Experiments still ongoing	Critical
	<ul style="list-style-type: none"> • Community Members 	<ul style="list-style-type: none"> • Charismatic species of cultural importance • Ecosystem services provision by the habitat 	<ul style="list-style-type: none"> • Household surveys to monitor changes in wealth and demography and land use types within the community area 	Positive	Critical

1.7 Context and background information that will affect the success of any conservation action for this species:

	Description	Barriers to conservation	Opportunities for conservation
Socio-cultural effects and cultural attitudes	A survey we did within the local community, Kasigau REDD+ project area, SE Kenya shows that the locals view the species as beneficial and recognize it controls snakes and rodents.	<ul style="list-style-type: none"> Financial constraints to help in conservation efforts Ingrained beliefs and customs as locals do not eat birds (but use their feathers for decoration during initiation ceremonies), and the Secretarybird is revered as it is known to take even on snakes 	Keep awareness high and target especially the youth
Economic implications	<p>Land demarcation, population increase and infrastructural development are real threats to the habitat</p> <p>Unsustainable agriculture. The agricultural method practiced is slash and burn and shifting to a new point which leads to habitat destruction as the area is an ASAL</p> <p>Poaching both for meat, trophy and wood products</p>	<p>Land demarcations will fragment habitat further</p> <p>Infrastructural development could cause local extinction</p> <p>Unsustainable agriculture will degrade an already fragile ecosystem</p>	<p>Encourage sustainable resource use and try as much as possible to influence government policy especially at the grassroots through local devolved administration</p> <p>Encourage indigenous tree planting and offer different sustainable sources of livelihoods like organic greenhouses, and modern methods of charcoaling.</p> <p>REDD funding: Wildlife Works REDD+ projects' ethos is helping locals to find alternative means of</p>

			<p>livelihood as opposed to logging and farming unsustainably is one of the effective ways of changing how locals view their resource and try and find a way of protecting it so that wildlife can work for the good of the community due to protection from locals themselves</p>
<p>Existing conservation measures</p>	<p>Kasigau REDD+ project, a long-term project in the area has put in place an all-encompassing conservation effort measure not only targeting the environment but majorly, ensuring equitable distribution emanating from the ecosystem. We have:</p> <ul style="list-style-type: none"> • Community awareness efforts • Direct employment by a private limited company • Offer of bursaries • Eco-charcoal outlet for best practices in charcoaling • Ecological monitoring through Mammal transects, foot and vehicular patrols by rangers • Aerial survey monitoring • Household survey 	<ul style="list-style-type: none"> • Adverse weather conditions such as extreme flooding and extreme drought • Fluctuations in funding as the project acts under a voluntary market offsetting set up 	<ul style="list-style-type: none"> • Bursaries and awareness creation in schools • Research and biodiversity monitoring efforts are already occurring in some sites e.g. Kasigau corridor under wildlife works • Encouraging collaborations among the various stakeholders

	<ul style="list-style-type: none"> • Greenhouse and tree nursery which supplies trees for replanting within the project area • Support through Community Based Organisation (CBO's) e.g. women weave baskets which are then marketed abroad for a better price • An organic fabric Export Promotion Zone (EPZ) to support local women with employment 		
<p>Administrative/political set-up</p>	<ul style="list-style-type: none"> • Political interference by politicians trying to please their political base by trying to reward supporters with land • Favourable land policies e.g. locals being encouraged to retain ranches as wholesome entities where they have shareholding instead of subdividing it which will cause major disruptions to the wildlife corridor and heighten Human Wildlife Conflicts 	<ul style="list-style-type: none"> • Infrastructural development, e.g. a new railroad and a proposed 6-lane superhighway right into the hinterland of the project area 	<ul style="list-style-type: none"> • Efforts should be made to minimize the damage caused by the barrier created with 2 rail roads, power cut line, Oil pipeline and now 6 lane Superhighway which could thoroughly affect wildlife within the Kasigau REDD+ corridor. • The laws governing land use favour pooling together and forming conservancies which help in conservation efforts

Local expertise and interest	<p>Many organisations like:</p> <ul style="list-style-type: none"> • County of Taita Taveta • Kenya Wildlife Service • Kenya Forest Service • Wildlife Works limited • ZSL • And other NGOS 		<p>All are geared towards wildlife, floral and also local community interests at creating positive synergies and ensuring minimal disruption and conflicts between locals and wildlife.</p> <p>Conduction more:</p> <ul style="list-style-type: none"> • Research efforts • Community outreach • Tree planting • Education and awareness efforts.
Resources	<p>Resources are constrained but each stakeholder pools in for the common good</p>	<p>Lack of sustainable funding for both research and monitoring, compensation</p>	<p>Writing of proposals and requesting for grants and government funding</p>

2. ACTION PROGRAMME

Vision (30-50 years)	
Protection of the habitat where the species occurs and enhance conservation efforts to ensure the species' numbers are stable.	
Goal(s) (5-10 years)	
Continuous monitoring, a census and create awareness about species status to ensure conservation efforts are sustainable in the long-term.	
Objectives	Prioritisation <i>(low, medium, high or critical)</i>
1. To continue with monitoring efforts through transects and patrols within our project area. We will run transects four times a year within a 500,000-acre area and ranger patrols will happen daily.	Critical
2. Put radio transmitters and colour-ring tags to understand more about movements of the species. Though now we do not have funds for tagging, we will source for funding to undertake this.	High
3. Efforts to have a countrywide census of Secretary birds to know more about absolute numbers, if not a rough estimate	Medium
4. Creation of awareness among stakeholders and more so come up with products which can be used as fun learning tools to encourage the youth to appreciate nature and conservation	High
5. Creation of positive synergies and reduce conflicts between local communities and the Secretarybird through education awareness and creation of alternative livelihood sources	Critical

Activities	Country / region	Priority (low, medium, high or critical)	Associated Cost	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
Objective 1: To continue with monitoring efforts through transects and patrols within our project area								
1.1: Transects	Kenya, south-east	Critical	Transport, Labour, equipment	25 years	Wildlife Managers and Scientists	Increase in species number	Lack of funding and equipment	Improving knowledge; Species management
1.2. Foot Patrols	Kenya, south-east	Critical	Transport, GPS units, kit, housing, subsistence	25 years	Locals, Wildlife Managers, KWS	Reduction in poaching and habitat destruction incidences	Contact with poachers, funding for kit and equipment	Increased security within the project area and community lands surrounding project area
Objective 2: Put radio transmitters and colour-ring tags to understand more about movements of the species								
2.1 Radio Tracking	Kenya, south-east	High	Transmitter cost and data management costs, and manpower for installing and monitoring	2 years	Scientists and technicians	Species' spatial movement and range established Downloading and managing the data	Transmitter's cost is very high about USD 3,000 (inclusive of data management and retrieval from the service provider) per unit and there is a 50-50 chance they can fall off before data collection is complete	Improving knowledge; Species management

Activities	Country / region	Priority (low, medium, high or critical)	Associated Cost	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
2.2 Tagging of Secretary Birds	Kenya, south-east	High	Transmitter cost and data management costs, and manpower for installing and monitoring	2 years	Scientists and technicians	Data collected showing distribution and movement 4 birds tagged	. Transmitter battery can die off or it can fall off from the bird	Improving knowledge; Species management
Objective 3: Efforts to have a countrywide census of Secretarybirds to know more about absolute numbers, if not a rough estimate								
3.1 set up a countrywide raptor survey	Kenya	Medium	Mobilizing and facilitating the different stakeholders in various parts of the country	Yearly	Wildlife managers in ranches, sanctuaries and National Parks & Reserves	<ul style="list-style-type: none"> • Census reports produced • Trends in species established over time • 6 aerial patrols per year • Bi-monthly foot patrol in areas where the species occurs • 4 road census patrols per year 	<ul style="list-style-type: none"> • Inadequate funding sources • Logistical challenges n synchronizing census activities 	Species management; Education & awareness; Capacity building
Objective 4: Creation of awareness among stakeholders and more so come up with products which can be used as fun learning tools to encourage the youth to appreciate nature and conservation								

Activities	Country / region	Priority (low, medium, high or critical)	Associated Cost	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
4.1 create awareness programs	Kenya	High	<ul style="list-style-type: none"> Funds for awareness creation 	Yearly event	<ul style="list-style-type: none"> Community members Community Liaison Officers 	<ul style="list-style-type: none"> Enhanced awareness among community members Marked behaviour change Habitat protection enhanced 4 Chief's Barazas per year 	<ul style="list-style-type: none"> Funds to sustain activities Political interference Lack of alternative livelihood sources Lack of community goodwill Customs and cultural practices which negatively affect ecosystem health 	Capacity building; Education & awareness; Improving knowledge

Activities	Country / region	Priority (low, medium, high or critical)	Associated Cost	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
4.2 Create kids' products to enhance awareness	Kenya, south-east	High	<ul style="list-style-type: none"> • Creation of products for kids as a conservation tool 	Yearly event	<ul style="list-style-type: none"> • Schools • Wildlife Clubs 	<ul style="list-style-type: none"> • Enhanced awareness among community members • Marked behaviour change • Habitat protection enhanced • 12 Fun day activities for kids (monthly) • 4 events of nature walk per year • Creation and sustenance of 25 Wildlife Clubs in schools within the project area • Game drives and demonstrations e.g. of bird ringing, bird watching 	<ul style="list-style-type: none"> • Funds to sustain activities • Political interference • Lack of alternative livelihood sources • Lack of community goodwill • Customs and cultural practices which negatively affect ecosystem health 	Education & awareness;

Activities	Country / region	Priority (low, medium, high or critical)	Associated Cost	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
4.3 Marketing and advertisement	Kenya	High	<ul style="list-style-type: none"> • Brochures, leaflets, fliers 	Yearly Event	<ul style="list-style-type: none"> • NGOs 	<ul style="list-style-type: none"> • Enhanced awareness among community members • Marked behaviour change • Habitat protection enhanced • Develop products that can help in sustainability • Distribute leaflets and brochures within the 6 locations 	<ul style="list-style-type: none"> • Funds to sustain activities • Political interference • Lack of alternative livelihood sources • Lack of community goodwill • Customs and cultural practices which negatively affect ecosystem health 	Education & awareness; Capacity building; Land/Water Protection
Objective 5: Creation of positive synergies and reduce conflicts between local communities and the Secretarybird through education awareness and creation of alternative livelihood sources								

Activities	Country / region	Priority (low, medium, high or critical)	Associated Cost	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
5.1 Enhance sustainable and Smart agricultural practices	Kenya	Critical	<ul style="list-style-type: none"> Enhance sustainable and Smart agricultural practices cost 	25 years	<ul style="list-style-type: none"> Conservation managers Government Agricultural Extension Officers Seeking collaborations with like-minded organization like ZSL and Earthwatch Community members 	<ul style="list-style-type: none"> Smart and sustainable agriculture which reduces Human Wildlife Conflicts Introduce and enhance Smart agricultural practices Modernise charcoal harvest from cutting of trees to using snippets to create brickets Scientific research and collaborations Influence government policy 	<ul style="list-style-type: none"> Mercurial land use practices Unsustainable resource use Government policy which at times could be populist Infrastructural development Rising human population Human Wildlife Conflicts Poaching both floral and faunal Changes in climate 	Law & policy; Livelihood, economic & other incentives

Activities	Country / region	Priority (low, medium, high or critical)	Associated Cost	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
5.2 Giving alternative livelihood sources through employment or skills enhancement	Kenya	Critical	<ul style="list-style-type: none"> • Attendant cost in giving alternative livelihood sources through employment or skills enhancement 		<ul style="list-style-type: none"> • Conservation managers • Government • Agricultural Extension Officers • Community members 	<ul style="list-style-type: none"> • Better or improved habitat due to reduced charcoaling and logging • Introduce and enhance Smart agricultural practices • Modernise charcoal harvest from cutting of trees to using snippets to create briquettes • Scientific research and collaborations • Influence government policy 	<ul style="list-style-type: none"> • Mercurial land use practices • Unsustainable resource use • Government policy which at times could be populist • Infrastructural development • Rising human population • Human Wildlife Conflicts • Poaching both floral and faunal • Changes in climate 	Livelihood, economic & other incentives

Activities	Country / region	Priority (low, medium, high or critical)	Associated Cost	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
5.3 Offering bursaries and other educational opportunities	Kenya	High	<ul style="list-style-type: none"> • Cost of offering bursaries and other educational opportunities 		<ul style="list-style-type: none"> • Government • NGO's e.g. USAID, Oxfam, Plan International 	<ul style="list-style-type: none"> • A healthier and better educated populace ready to embrace and enhance conservation efforts • Form or enhance 6 Local Carbon Committees or liaise with the local government to ensure bursaries are free and fair to all • Organize 2 fund-raising activities per year for fund-raising 	<ul style="list-style-type: none"> • Mercurial land use practices • Unsustainable resource use • Government policy which at times could be populist • Infrastructural development • Rising human population • Human Wildlife Conflicts • Poaching both floral and faunal • Changes in climate 	Livelihood, economic & other incentives; Law & policy; Education & awareness; Species management; Land/Water management

Activities	Country / region	Priority (low, medium, high or critical)	Associated Cost	Time scale	Responsible stakeholders	Indicators	Risks	Activity type
5.4 Community Awareness and Outreach	Kenya	Critical	<ul style="list-style-type: none"> • Financing of stakeholder analysis workshops 		<ul style="list-style-type: none"> • Social Scientists • Community Awareness and Outreach Officers 	<ul style="list-style-type: none"> • A healthier and better educated populace ready to embrace and enhance conservation efforts • 12 community awareness and continuous education and awareness creation among community members 	<ul style="list-style-type: none"> • Mercurial land use practices • Unsustainable resource use • Government policy which at times could be populist • Infrastructural development • Rising human population • Human Wildlife Conflicts • Poaching both floral and faunal • Changes in climate 	Livelihood, economic & other incentives; Law & policy; Education & awareness; Species management; Land/Water management

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