

Fine-scale habitat use evaluation and threat assessment for a long-distance migratory raptor at its wintering grounds: the case of Eleonora's Falcon in Madagascar

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Eleonora's falcon predominantly overwinters in Madagascar, where the natural habitats are increasingly threatened by intensive forest degradation and other primarily human-induced habitat alterations. Through this study, we explored Eleonora's falcon fine scale habitat use, including daily and hourly spatiotemporal activity patterns, and the factors affecting the presence of the species across Madagascar. We used high resolution GPS telemetry technology to establish bird-habitat associations and investigate birds' movements. Moreover, through on-site field surveys in Madagascar, we verified habitat composition on a sample of the species' activity centers and assessed pressures and threats. Eleonora's falcon uses a diversity of habitats during the overwintering period (austral summer) in Madagascar, exhibiting high site fidelity, moving progressively from more open habitats towards areas with denser tree cover, possibly as a response to food availability. The species dedicates about 15 % of its time foraging, which is performed almost exclusively during daytime, while about 80 % of its time is spent resting or roosting. The field work undertaken in Madagascar showed that the existing maps tend to overlook smaller fragments of habitat types and fail to notice small scale land uses. On-site assessment also indicated that land use changes are the primary threats to the species. Our findings suggest that the advent of GPS logger technology can enhance our understanding of the species' ecology at finer and more ecologically relevant scales, while ground surveys are still very useful in habitat assessment to identify problems and to facilitate management and planning for conservation actions in remote areas.

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