CMS GIUM

Global Initiative on Ungulate Migration

FACT SHEET

Red Deer: Versoix, France & Switzerland

Migration Description

The red deer in the Geneva basin live alongside highly-urbanized zones, making use of scattered woods bordered by the large, forested slopes of the Jura mountains. Within this landscape, red deer make daily movements between forest patches within the urbanized lowlands, and longer, seasonal migrations between the lowlands and the Jura mountains. There are two resident subpopulations, one living year round in the lowland and the other in the mountains. Only some individuals, mainly males, make seasonal migrations between those subpopulations.

The red deer make two migrations in their annual cycle. The first occurs during the rut. In September, female deer from the lowlands concentrate in one larger forest patch and are joined by males moving down from the Jura mountains. After the rutting season, these males move back to the foot of the Jura mountains where they spend the winter. In March and April they migrate back to the higher elevation areas of the mountains following snow-melt. They spend the summer in these high elevation zones. In the sub-population that remains in the Jura mountains year-round, red deer make shorter migratory movements driven by snow depth.

Threats to Migration

Only two corridors remain between the lowlands and the Jura mountains. One shows a very low level of use, and fences strongly impact the other corridor. However, the red deer migrations along both of these corridors in Versoix are vital for facilitating gene-flow at the metapopulation scale. They are also important for the survival of both subpopulations at a more local level. In the lowlands, resources are scattered within an urbanized matrix, requiring animals to move frequently to access available forage. In the mountains, the more extreme seasonal resource variability makes elevational migrations critical to escape deep snow and access vegetation at peak quality. Threats to the red deer migrations are mainly experienced in the lowlands and along the corridors linking them to the Jura mountains. With cities and villages growing fast in the region, urbanization is putting pressure on the red deer's remaining migratory corridors, reducing the width or outright destroying them. And as the traffic volume along the roads is increasing, collisions also pose a threat to migrating red deer, creating a barrier effect on deer movements. Growing numbers of fences also represent a barrier to migration. Horse farming is replacing cattle in many areas, leading to smaller pastures with more fencing than the large cattle pastures. The fences used to contain horses are higher, have more bars and are therefore less permeable for red deer than typical cattle fences.

Local Population Facts

Migration

Seasonal

Short 6.1 km (avg.)

Threats

Climate change

Energy dev.

Urban sprawl

Linear barriers

Agriculture

Livestock

Illegal killing

Other

Species Facts

Common name: Red deer

Species name: *Cervus elaphus*

Range: Eurasia

Diet: Mixed-feeder herbivore

Global population: Unkown; Europe: ~2 million

IUCN Conservation Status

LC Least concern

CMS Status

Not listed

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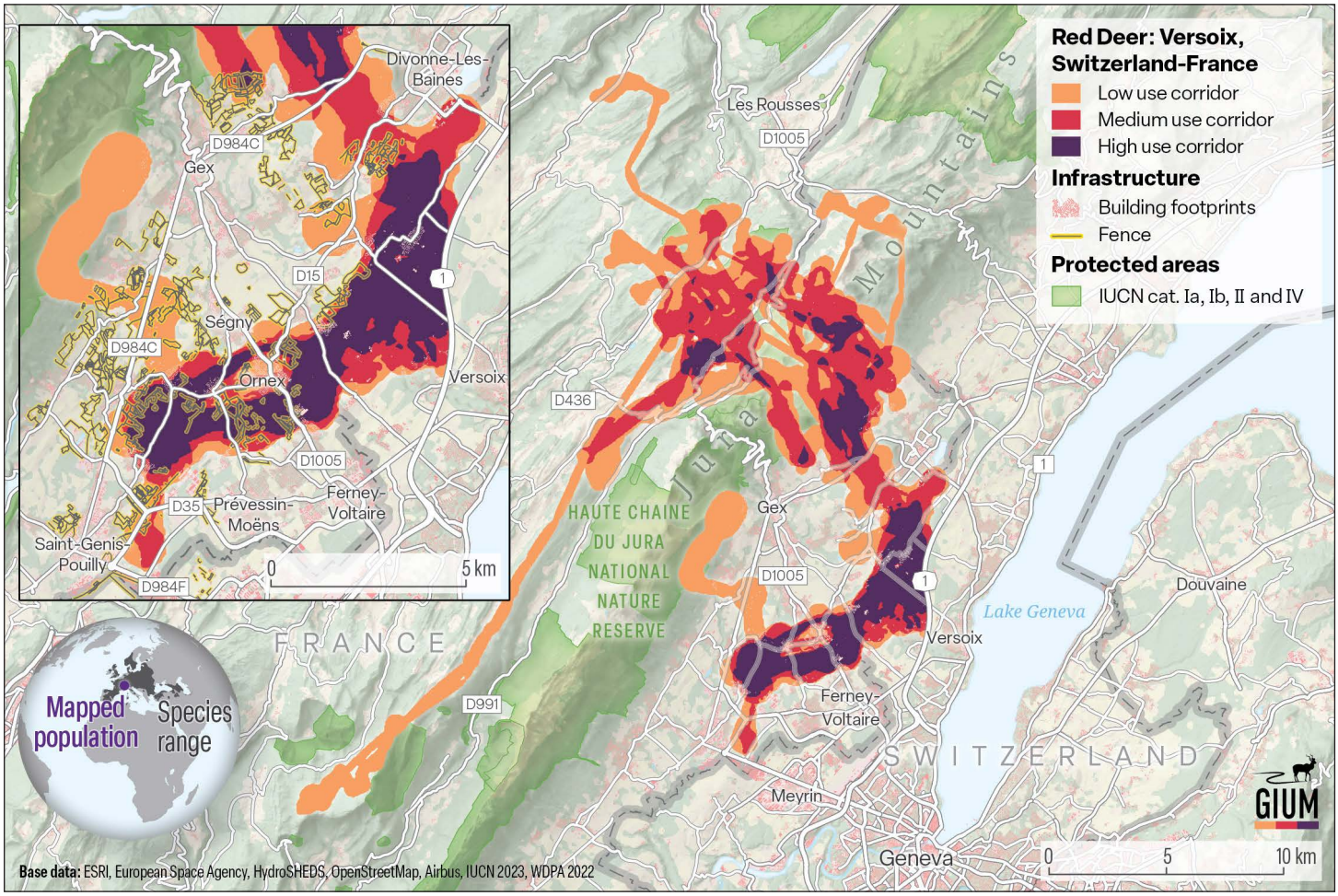
Red Deer Migration



Winter range		Spring migration		Summer range			Fall migration		Rut		Early winter migration
Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec

Study Information

Sample size
20 individuals

Relocation frequency
1–12 hours

Project duration
5 years, 2010–2014

Data Analysis

Delineation of migration periods
Net squared displacement to delineate migration between winter and summer ranges

Models derived from
Brownian Bridge Movement Models (fixed motion variance, 500)

Route Summary

Migration start and end date (median)

- Spring: May 31–June 2
- Fall: September 25–September 29

Average number of days migrating

- Spring: 4.9 days
- Fall: 6.2 days

Migration route length

- Min: 1.6 km
- Mean: 6.1 km
- Max: 17.9 km

In partnership with:

Interreg France - Suisse

UNION EUROPÉENNE

FÉDÉRATION DÉPARTEMENTALE DES CHASSEURS DU JURA

REPUBLIQUE ET CANTON DE GENEVE

POST TENEBRAS LUX

Data Providers

Data was collected in the context of the European program Interreg (IV A 2007- 2013), a collaboration between the French Office of Biodiversity (OFB), Hunters' Federations of Ain, Doubs and Jura of France and Federal Office for the Environment of Switzerland. The Canton Geneva and the HEPIA (Haute Ecole du Paysage, d'Ingénierie et d'Architecture) were also instrumental in this project. In accordance with European and French laws, red deer captures were carried out minimizing animal stress and handling time, and ensuring animal welfare, as defined in the guidelines for the ethical use of animals in research. All methods were approved by the French Ministry of Environment as well as by Canton Geneva and the Swiss Federal Office of the Environment.

CMS www.cms.int

The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, is an environmental treaty of the United Nations that provides a global platform for the conservation and sustainable use of terrestrial, aquatic and avian migratory animals and their habitats.

GIUM www.cms.int/gium

The Global Initiative on Ungulate Migration (GIUM) was created in 2020 to work collaboratively to: 1) create a Global Atlas of Ungulate Migration using tracking data and expert knowledge; and 2) stimulate research on drivers, mechanisms, threats and conservation solutions common to ungulate migration worldwide.

View and Download Map Data from the GIUM Migration Atlas

Fischer, C. and S. Said. 2024. Red Deer: Versoix, France & Switzerland. Global Initiative on Ungulate Migration, editors. *Atlas of Ungulate Migration*. Convention on the Conservation of Migratory Species of Wild Animals.