Iceland Liechtenstein Norway grants

KARKONOSKI PARK NARODOWY

Zintegrowany monitoring przyrodniczy i antropopresji w Karkonoskim Parku Narodowym

Moduł telemetrii na ssakach i ptakach

Artur Pałucki
Karkonoski Park Narodowy

Poprawa stanu łączności ekologicznej jako kluczowe wyzwanie dla ochrony przyrody w parkach narodowych
Jelenia Góra, 6-8 marca 2024

Telemetria na zwierzętach – forma znakowania osobników pozwala na niezawodne zidentyfikowanie osobnika bez zbliżania się do niego, w dowolnym czasie.

Nadajniki telemetryczne przyczepiane na powierzchni ciała
Nadajniki telemetryczne wewnątrz ciała zwierząt

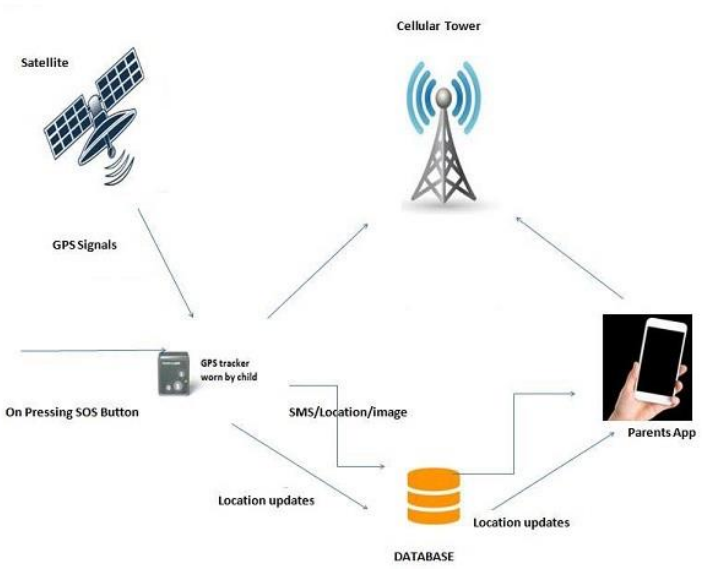
Inne sposoby znakowania:
znaczniki, obrączki, kolczyki, nici, barwienie sierści, malowanie farbami na skórze lub pancerzu, wykorzystanie pudrów fluoroscencyjnych, grawerowanie pancerzy żółwi, wygalanie sierści, amputacje i inne

Znakowanie nie powinno ograniczać normalnej aktywności zwierzęcia.

- jak najmniej bolesne i stresujące
- nie powinno zwiększać podatności na drapieżnictwo
- nie powinno zaburzać interakcji pomiędzy osobnikami tego samego gatunku
- łatwe do zastosowania
- czytelne i jednoznaczne
- dostępne cenowo
- niezawodne

Telemetria jest bezprzewodową formą przekazywania informacji przy użyciu fal radiowych.

- radiowa – konwencjonalna,
- satelitarna,
- GPS/GPRS/GSM



Tracking System Options

GPS Systems

Today's GPS systems have come down in price and weight. ATS has models ranging from as light as 50 grams, to 700 gram big game Iridium/GPS collars.

VIEW REQUIREMENTS ›

Manual Tracking

For smaller scale studies basic homing to track your birds is commonly used.

VIEW REQUIREMENTS ›

Remote Unattended Stations

Many presence-absence studies involving birds use one or more data-logging receivers located in strategic positions. These stations can be provisioned to operate unattended for months using battery packs and solar panels.

VIEW REQUIREMENTS ›

Aerial Tracking System

Widely dispersed animals will be more easily located using small aircraft . ATS has everything you'll need for aerial telemetry.

VIEW REQUIREMENTS ›

atratrac.com

TERRESTRIAL

[Coded VHF Radio Transmitters]

RADIO

COLLAR

MARINE

[KiwiSat® K4 Series for Small Sea Turtles]

ARGOS

TAG

MARINE

[KiwiSat® K4G Series]

ARGOS

TAG

AVIAN

[Sunbird Solar Argos Transmitters]

ARGOS

TAG

AVIAN FRESHWATER MARINE TERRESTRIAL

[SRX1200]

RADIO

RECEIVER

AVIAN

[NanoPin]

RADIO

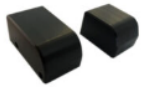
TAG

TERRESTRIAL

[Activity Logger (ALOG)]

GPS RADIO

ACCESSORY



AVIAN

[GoTel GPS Transmitters for Birds]

GPS GSM

TAG

AVIAN

[ARCGEO Geolocator-TDRs for birds]

ARCHIVAL

TAG

lotec.com

Nieinwazyjne rozpoznawanie osobników

Naturalne genotypowanie, sonogramy, ubarwienie osobników, znaki szczególne cechy szczególne np. plamkowanie, cętki itd.,
Konieczność zastosowania dodatkowych urządzeń i inne ograniczenia np. umiejętności badacza.

Zasady, wytyczne

- Obowiązujące przepisy prawa

- Ustawa z dnia 16 kwietnia 2004 r. o ochronie przyrody

- Rozporządzenie Ministra Środowiska z dnia 14 marca 2006 r. w sprawie obrączkowania Ptaków

- USTAWA z dnia 13 października 1995 r. Prawo łowieckie

- Ustaw z 5 stycznia 2015 r. o ochronie zwierząt wykorzystywanych do celów naukowych lub edukacyjnych

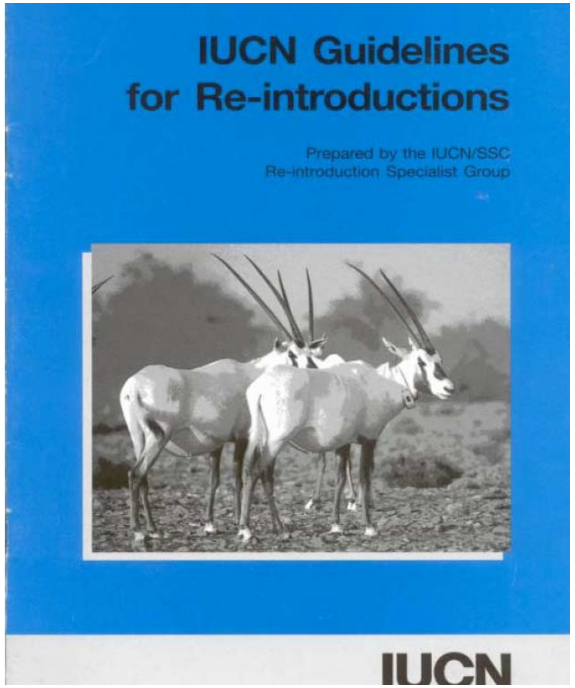
Zasady, wytyczne

Reguła Kenwarda (Kenward 1987) Wildlife Radio Tagging: Equipment, Field Techniques and Data Analysis, Academic Press, Londyn. Praktyczna zasada mówi, że waga nadajników radiowych dla ptaka nie powinna przekraczać 3% jego masy ciała

Zgodnie z Uchwałą Krajowej Komisji Etycznej do spraw Doświadczeń na Zwierzętach, znakowanie zwierząt za pomocą nadajników telemetrycznych umieszczanych na ciele zwierzęcia i nie przekraczających 5% wagi ich ciała, uznane zostało za najmniej bolesną metodę znakowania. Uchwała Nr 8/2006 *Krajowej Komisji Etycznej ds. Doświadczeń na Zwierzętach* z dnia 11 lipca 2006 r. w sprawie najmniej bolesnych metod znakowania zwierząt.

Uwaga – odławianie, chwytanie

Wytyczne, wyniki badań naukowych



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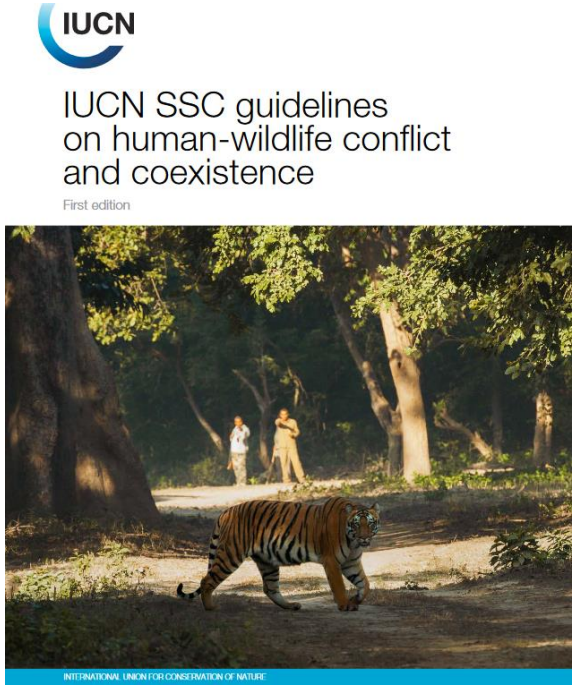

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Research

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Ecology

Subject Areas:
behaviour, biomechanics, ecology

Keywords:
collar design, detriment, ethics, guidelines, tag mass

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Animal lifestyle affects acceptable mass limits for attached tags

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[11]KSU Mammals Research Chair, Zoology Department, King Saud University, Riyadh, Saudi Arabia

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Animal-attached devices have transformed our understanding of vertebrate ecology. To minimize any associated harm, researchers have long advocated that tag masses should not exceed 3% of carrier body mass. However, this ignores tag forces resulting from animal movement. Using data from collar-attached accelerometers on 10 diverse free-ranging terrestrial species from koalas to cheetahs, we detail a tag-based acceleration method to clarify acceptable tag mass limits. We quantify animal athleticism in terms of fractions of animal movement time devoted to different collar-recorded accelerations and convert those accelerations to forces (acceleration × tag mass) to allow derivation of any defined force limits for specified fractions of any animal's active time. Specifying that tags should exert forces that are less than 3% of the gravitational force exerted on the animal's body for 95% of the time led to corrected tag masses that should constitute between 1.6% and 2.98% of carrier mass, depending on athleticism. Strikingly, in


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Mammal Research (2019) 64:71–85
https://doi.org/10.1007/s13364-018-0397-6

ORIGINAL PAPER

Does the matrix matter? Home range sizes and space use strategies in stone marten at sites with differing degrees of isolation

Anna Wereszczuk[1] · Andrzej Zalewski[1]

Received: 25 July 2018 / Accepted: 12 September 2018 / Published online: 26 September 2018

Abstract
Isolated patches resulting from habitat fragmentation can be surrounded by matrices with different permeabilities that can restrict dispersal and affect space use patterns. In this study, we examined the consequences of being isolated by matrices with different permeabilities on the space use patterns of the stone marten (*Martes foina*). We radio-tracked 41 martens at two study sites: a highly isolated site (HIS) in villages inside Białowieża Primeval Forest and a low-isolated site (LIS) in villages within a heterogenous landscape comprising a mosaic of agriculture and forest patches. Observations since 1991 documented the population as having a high proportion of males, which significantly declined after 2011. At both sites, stone martens used larger home ranges in spring-summer than in autumn-winter, and males had two to five times larger home ranges than females. Martens adopted two strategies of home range use—stationary or roaming. Roamer individuals only occurred at the HIS, had a 7-fold larger home range size, and moved farther between independent locations than stationary individuals. Roamers often switched between strategies and were in worse condition than stationary martens. Stationary martens used some of the smallest home ranges in Europe, with sizes similar to martens living in cities, while roamers had some of the largest, similar to stone martens inhabiting forests. Seasonal home ranges of stationary individuals did not differ between the study sites, but at the HIS, fidelity to home ranges was lower. Analyses of genetic relationship between individuals showed that dispersal distances from natal areas were shorter at the HIS. The study showed that stone martens exhibit great plasticity in space use.

Keywords Habitat isolation · Home range size · *Martes foina* · Spacing pattern

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Wersja PDF: www.lesne-prace-badawcze.pl
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Grudzień / December 2021, Vol. 82 (4): 131–142
ORYGINALNA PRACA NAUKOWA
e-ISSN 2082-8926

Proces usamodzielniania się śledzonych telemetrycznie bielików *Haliaeetus albicilla* z Parku Narodowego „Bory Tucholskie" w okresie post-piskleycym

The process of becoming independent in the post-fledling period of the telemetry tracked White-tailed Eagles *Haliaeetus albicilla* from the "Bory Tucholskie" National Park

Dariusz Anderwald[1, 2] *, Karolina Lubińska[3]

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Abstract. In 2019–2020, as part of the research on the spatial ecology of the White-tailed Eagle in the "Bory Tucholskie" National Park (PNBT), 4 GPS loggers were given to large chicks. In 2019, chicks from two different nests were equipped with these devices, and in 2020, another two chicks from the same nests. It has been shown that the dispersion of juvenile White-tailed Eagles is preceded by a preparation period lasting several weeks, during which large chicks go through several characteristic stages: weakly volatile pod flying on the branches, short training flights outside the nest, directed flights to the feeding grounds (<3 km) and long-distance (>3 km) exploration flights. The first flights of the examined individuals outside the nest area were made between the 6th and 13th July, while the first flights to the feeding grounds occurred between the 28th July and 7th August. All tracked individuals began longer exploratory flights (N=64, *X*=16), with a maximum distance of 43.2 km from the nest (*X*=11.76 km, *Me*=10.01 km) between the 9th August and 1st September. In both years of study, the young birds from the same breeding area left the nest and its surroundings in the third week of August and moved 1,300 m to the NE, to the peninsula of the main lake in the Park. Juvenile White-tailed Eagles from the "Bory Tucholskie" National Park began their independence period between the 5th and 22nd October. During the first 30 days from the moment of leaving the breeding area, juveniles left the Park in various directions travelling for distances of 39–80 km, using strategies of abrupt displacement and nomadism, gradually exploring the feeding grounds.

Keywords: White-tailed Eagle, Bory Tucholskie National Park , telemetry research, GPS loggers, spatial ecology, large chicks, feeding grounds, exploration flights, dispersion
Słowa kluczowe: bielik, Park Narodowy Bory Tucholskie, badania telemetryczne, rejestratory GPS, ekologia przestrzenna, duże pisklęta, loty na żerowiska, loty eksploracyjne, dyspersja

Uzasadnienie podjęcia tematu

- przeprowadzenie analiz wpływu zmiany jakie zachodzą w krajobrazie Karkonoszy i terenów przyległych (fragmentacja i antropogenizacja biotopów, powstawanie barier ekologicznych) na zespoły ssaków i ptaków w Karkonoszach,
- gromadzenie danych na temat niszy troficznej, preferencji siedliskowych, użytkowania przestrzeni, określenia areałów osobniczych, zasięgu migracji sezonowej, wykazanie korytarzy migracyjnych wykorzystywanych przez wymienione gatunki i określenie ewentualnych obszarów konfliktowych w funkcjonowaniu wymienionych gatunków i aktywności ludzi,
- monitoring i analiza procesu rekolonizacia Karkonoszy przez wilka, jego interakcje z ofiarami i mezodrapieżnikami,
- analiza internakji wilk-człowiek.

Ssaki
jeleń szlachetny *Cervus elaphus* – **8**
dzik euroazjatyck *Sus scrofa* - **6**
wilk szary *Canis lupus* – **2**
lis rudy *Vulpes vulpes* - **5**
kuny leśna/ domowa Martes sp. – **5**

kryteria wyboru: dyspersja, migracja, terytorializm, sezonowe przemieszczenia, gatunki kluczowe

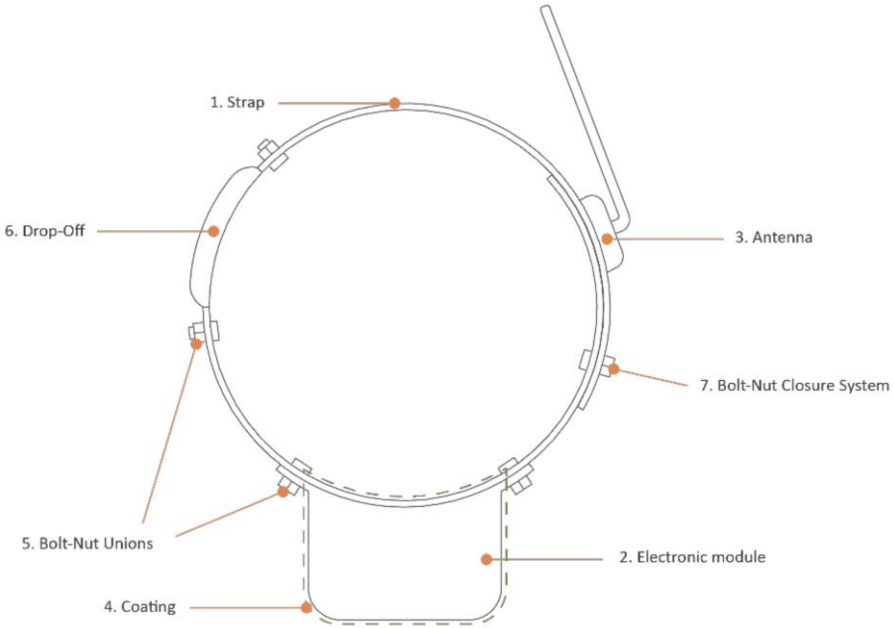
Fot. Anna Wereszczuk

Ptaki
bielik *Haliaeetus albicilla* - 1
bocian biały *Ciconia ciconia* - 1
bocian czarny Ciconia nigra - 1
kruk *Corvus corax* - 3
sokół wedrowny *Falco peregrinus* (male, female) – 2
jastrząb *Accipiter gentilis* (male, female)– 2
puchacz *B.bubo* – **1**

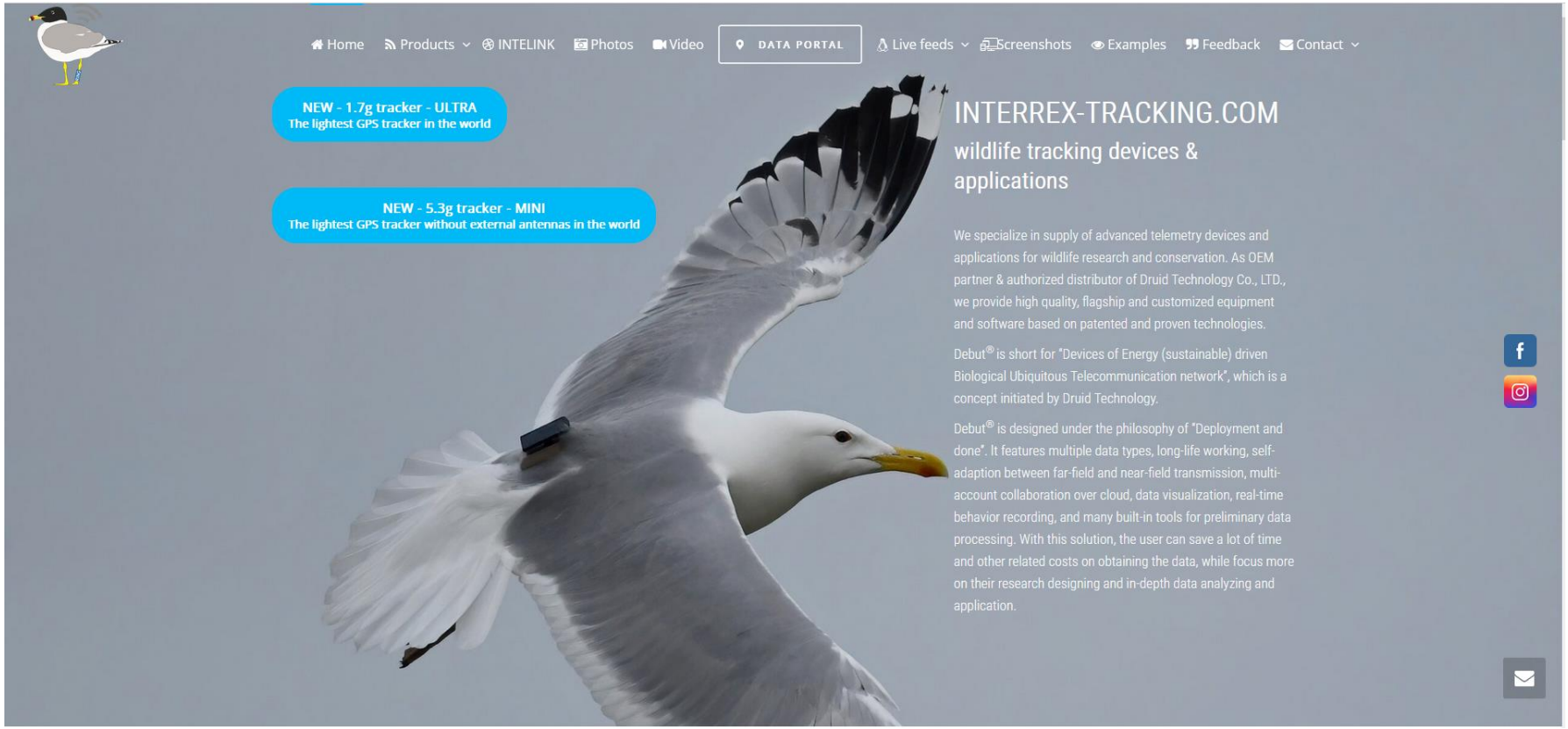
gatunki osiadłe, migrujące, kluczowe

Przykłady dostawców sprzętu

https://www.ecotone.pl/index.php/pl/produkty/telemetria
https://interrex-tracking.com/
https://gps.aquila-it.pl/en/
https://www.lotek.com/
https://www.ornitela.com/
https://www.microwavetelemetry.com/solar_argos_gps_ptts
https://www.telonics.com/
https://atstrack.com/index.html
http://www.wildbytetechnologies.com



Realizacja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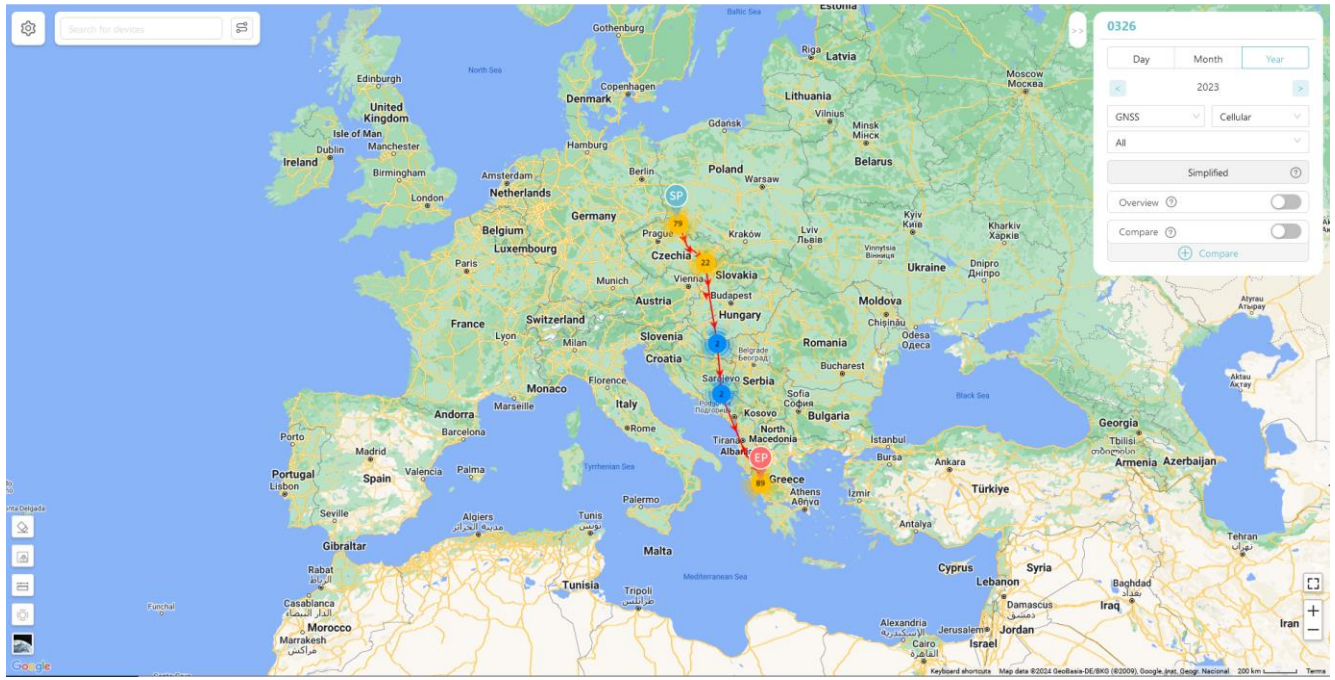
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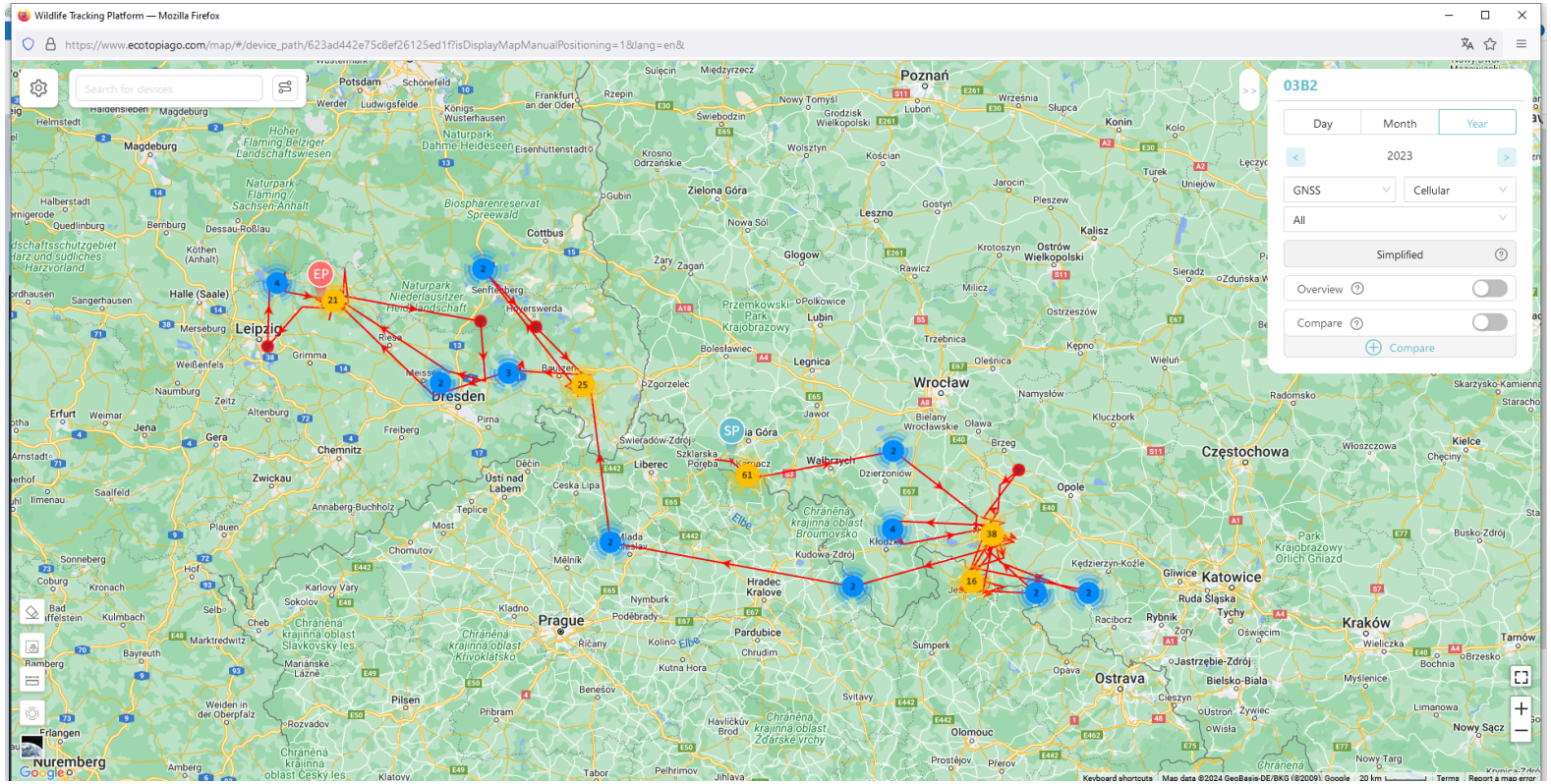
Wildlife Tracking Platform — Mozilla Firefox
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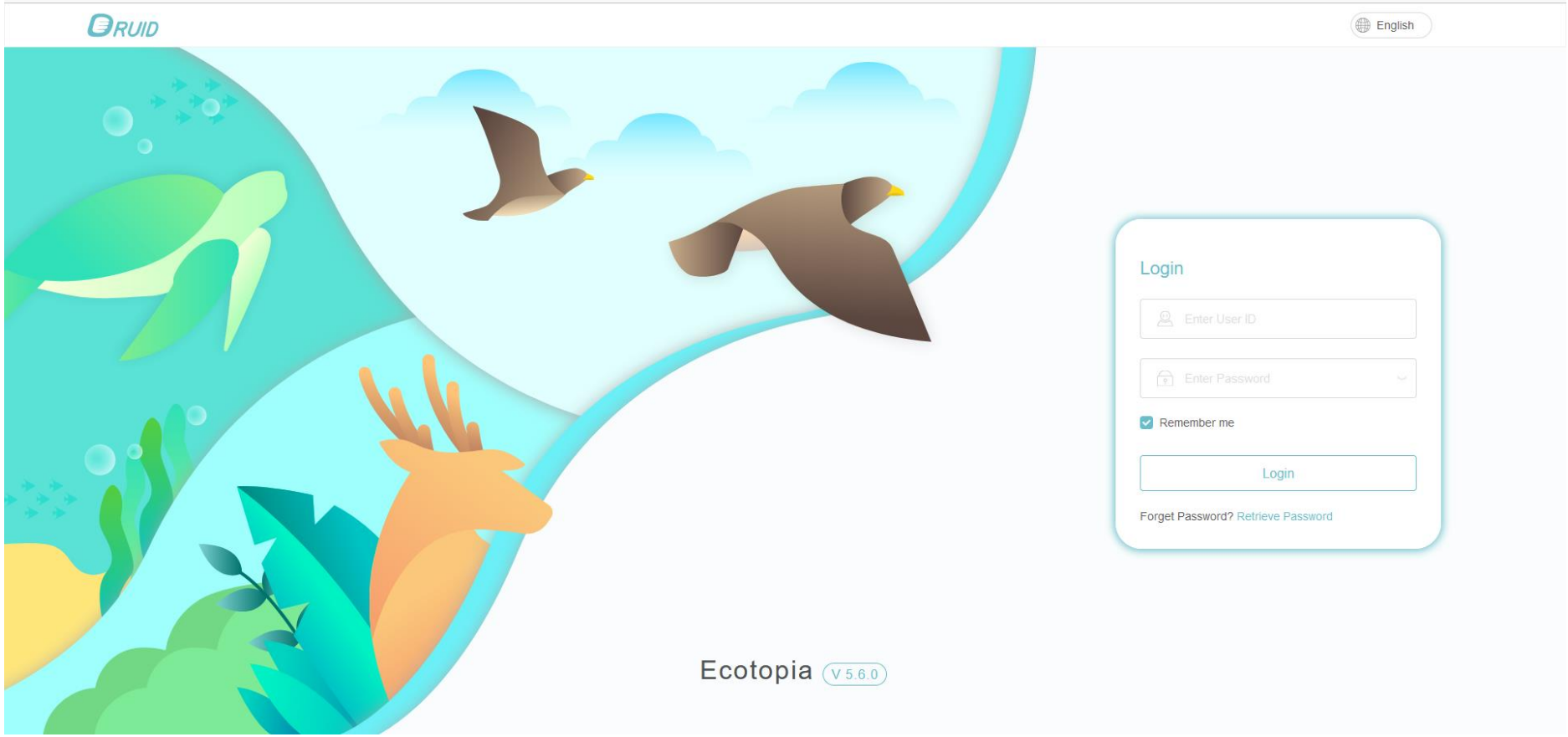
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Polskie Parki Narodowe

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