SCCS Hungary 2016
Abstracts

The dynamics and structure of *Myricaria germanica* bushes on Carpathian rivers in Poland

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Myricaria germanica (German tamarisk) is a typical species for riparian plant communities. It occurs on gravel bars across the mountain rivers and streams in many European mountain ranges. The riparian plant communities shaped by floods seem to disappear all over Europe. The purpose of this research was to investigate the structure and dynamics of woody plants on a gravel island, spontaneously created by a flood in 2010 on the Kamienica Nawojowska river. The number, age and height of each individual of woody plant species was counted annually for five following years. The research was conducted in quadrats (1 x 1 m), covering the whole area of the island. Additionally, the information about the type of substrate was gathered. The surface area was marked using a GPS receiver and measured before and after the flood (summer 2014), which altered the shape of the island. We proved that the dynamics of *Myricaria germanica* is strictly connected with natural river dynamics. The abundance of plant individuals is dependent on the strength of summer floods. German tamarisk can be considered a great example of a plant which is not only adapted to natural disturbances, but depends on their occurrence. The results of these studies reveal the natural changes in density of shrubs as a result of annual fluctuations of water levels, especially episodes of floods. Conservation of riparian plant species and their communities need to involve conserving whole watercourse ecosystems in their natural forms.

Habitat preferences of Grey Wagtail and White-throated Dipper in Beskid Żywiecki Mountains: birds as bioindicators

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Grey Wagtail and White-throated Dipper are species that inhabit the flowing waters environment principally in mountain and foothill areas. The aim of the study was to determine the influence of selected parameters of watercourses on the distribution of these species in the environment of Beskid Żywiecki Mts. The study compared the watercourses parameters in 35 White-throated Dipper localities, 203 Grey Wagtail localities and 203 random control points. Both studied species preferred localities with a high water-flow speed and partly open riparian canopy. White-throated Dipper, in the contrary to Grey Wagtail, was mostly encouraged to settle at wider and deeper watercourses, with higher value of the current velocity. Whereas Grey Wagtail preferred wider fluvial rubble and multitude of cascades. Both, Grey Wagtail and White-throated Dipper require natural channels or streams with fairly restricted man-made changes preferably in mountain area.

Globally Threatened Birds, Cultural Values and Campaigning for Iconic Species

Michelle Cooper

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My poster addresses the complexity of the application of values to the practice of conservation. Bringing together three global organisations (BirdLife International, Rare and the Ethno-ornithology World Archive) to investigate how cultural values can be used to support conservation outcomes for globally threatened birds through campaigning.

Informal, unstructured and semi-structured interviews were used in a complimentary fashion to capture specialist knowledge, expertise and attitudes through engaging a variety of stakeholders from academia, industry, conservation campaigners and NGOs. These interviews were carried out in both a planned and opportunistic manner, exploring the following:

- Values theory
- The application of values in a conservation context
- Rare's social marketing approach

his qualitative data was recorded through note taking during and directly after interviews. These insights were indexed in the correlating sections of my notes from the literature review.

A literature review was conducted to gain an in depth understanding of the values paradigm using a rapid survey technique through Google Scholar including the following key search terms: 'values', 'cultural values' 'birds AND culture' 'cultural resonance AND birds' 'ethno-ornithology' 'conservation values' 'values theory' 'cultural orientations', 'social marketing conservation'.

From the seed articles captured above, snowball sampling was used to secure additional literature. This approach was used as key words were not used consistently across the literature and the explicit reference to the use of cultural values is uncommon in conservation practice.

This research led to the development of a rapid assessment tool for BirdLife International, to undertake annual assessments of globally threatened birds to identify which species under specific circumstances are suited to campaigning through a cultural lens. Furthermore, the literature review provides a whistle-stop tour of values theory and provides a visual representation of how conservation organisations can integrate values theory into practice.

Although the integration of values is often implicit in many conservation interventions, progressing our understanding of how to incorporate cultural values is a significant challenge for conservation practitioners. Forging a path that understands how values influence attitudes and behaviour is essential to creating a vision for the delivery of conservation interventions that facilitate behavioural change through the activation of the prevailing cultural values.

Body size and climate change: Testing the explanatory power of environmental anomalies in French songbirds

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Body size variation was proposed as an ecological response to climate change. However, species response is non-consensual. We identify which species are climate-dependent in size, and which

traits explain this dependence. With a modelling approach (GLMM, multi-model inference), we tested the effect of climate and net primary production local anomalies on body size for 41 common species (n > 40.000). Models were based on a large-scale (250 sites) 15-year survey. Body size is best explained by anomalies in rainfall, net primary production, and in a lower extent, temperature. These variables explained 3.5-20% of body size variations. The most sensitive species were ground foragers and single-brooded species. Beyond theoretical advances, our results allow us to predict which species are likely to be the most affected by climate anomalies. This will enable targeted conservation actions in the face of global changes.

Native and invasive deer: detection, population estimation and economic damage mitigation

Erfan Fadaei

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The problem of deer over-abundance has negative effects on natural ecosystems, and causes economic damage to agriculture and forestry. I will present findings on an invading muntjac population, and the results of an attractant on deer behaviour. Using wildlife camera traps to remotely assess deer behaviour, and to establish the presence and population size of muntjac deer in Northern Ireland. From among 4 attractants tested on wild Sika deer, apples proved to be the most attractive lure. This is the first empirical test in the UK of attractants used for stalking deer. Muntjac deer are still present in Northern Ireland. Deer are a major player in woodland ecosystems, and over abundance is causing damage. Finding an effective attractant can help deer managers to effectively meet cull targets. Muntjac are a notorious invader that has recently been introduced to NI.

The Prospect of a Transboundary Marine Protected Area to Help Resolve the Piran Bay Border Dispute in the Northern Adriatic

Matic Jančič

Piran Bay region hosts critical habitat types and endangered and vulnerable species recognized by international and European Union (EU) legislative framework, but currently lacks effective conservation measures. Analysis of existing ecological and biological knowledge of the Piran Bay region. Semi - structured interviews with Slovenian and Croatian state and local authorities, experts and stakeholders. Even though the biological justification for establishing a Transboundary Marine Protected Area is sound and legal tools are in place, several socio-economic aspects seem to be hindering the development of the initiative. Conservation actions can be impeded not by knowledge gaps or lack of motivation, but by other socio-economic factors, i.e. neighboring states political conflicts, economic importance of the region, that need to be overcome for conservation to succeed.

The effect of management on forest microclimate: observational and experimental approaches.

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Many forest-dwelling organism groups are strongly influenced by stand structure and management through microclimate. Thus it is important to identify key explanatory variables determining microclimate and to study how forestry practices can alter it. Relationships between structural variables on microclimate were explored by linear regression models based on observational studies. Effects of forest treatments on microclimate were investigated by experimental approach and analyzed by ANOVA models. Air temperature and humidity were mainly influenced by subcanopy and shrub layer. Light was attenuated by diameter and tree size diversity. Light, air and soil temperature were highest in clearcuts, the increase of soil moisture was largest in gaps. Well-developed shrub layer and subcanopy were revealed as main drivers maintaining stable stand climate. Gap-based methods or thinning could enhance the natural regeneration and help the survival of forest dwelling organism groups in managed forests.

Restoration of open steppe mosaic oak forest: comparison of initial and target vegetation

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We reconstruct a mosaic of open steppe oak forest and grassland by several restoration methods in area of Lego factory in East-Hungary (Nyíregyháza). In our study we present the initial vegetation of restored sites and compare it with target sites. The vegetation was studied by 2 x 2 m coenological quadrates and species list was made during field survey. Our data were analysed by multivariate methods (ordination and correlation analysis). Significant differences were detected between vegetation of restored site and reference site. Weed species were the most abundant in the initial state at factory site, contrary to these sites late seral vegetation is found at reference sites. We suggest the use of combination of restoration interventions to result in successful restoration, to facilitate trajectories of vegetation development to best resemble target composition and ecosystem functioning.

From one engagement to another: motivations behind pro-biodiversity behaviours

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Ongoing biodiversity crisis needs individual involvement through pro-environmental behaviours (PEB). Individuals behaviours could address the decline in the diversity of pollinating insects:

directly (e.g., growing honey-flowers) or indirectly (e.g. surveying pollinators through citizen science programs).
Based on Ajzen Theory of Planned Behaviour (TPB), PEB are motivated by attitude (is PEB pleasant, etc.?), perceived behavioural control (am I able to do it?) and subjective norm (what will my close contacts think?). Stern theory of environmental concern takes into account general factors: values (egoistic, altruistic, biospheric) and environmental concern.
This study linked those general factors with the TPB variables using the aforementioned PEB and comparing a group of respondents already engaged in one PEB with another one non engaged.
The involvement is higher among the already engaged respondents, but we still need to understand the direction of the causal link between Stern model and TPB variables.

Small-scale metacommunity of zooplankton in Serbian temporary pools

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Temporary aquatic habitats are disappearing throughout the world. They are numerous but neglected in Serbia and basic research is highly needed for their conservation. We studied spatial community assembly of zooplankton along environmental gradients. We recorded all habitats in a confined area (within 600 m) with a high density of pools along with their environmental characteristics and spatial configuration. Most of the collected zooplankters were identified at species level. Temperature (related to the level of shading) turned out to be the strongest environmental predictor, along with pH. These local factors together with the spatial arrangement of sites explained a high variation of the zooplankton metacommunity. The spatial arrangement of pools can be an important driver of zooplankton communities even on a small spatial scale. The studied pools host diverse communities, including large branchiopods, but they are under constant anthropogenic pressure.

Predicting range shifts of a threatened alpine plant in the Romanian Carpathians

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The aim is to identify the relative importance of climate change and human collection on the geographic distribution of Leontopodium alpinum in the Romanian Carpathians. Collection of seeds from each of the 45 1sq plots throughout the Romanian Carpathians. Species distribution modelling in RStudio. Generalized linear mixed models for seed production modelling in 2015 and 2050. The seed number and seed mass decrease by 2050 according to HadGEM2-ES and MIROC5 models run under two of the four scenarios developed by the Intergovernmental Panel on Climate Change: RCP6 and RCP8.5 climate scenarios. The results increase the understanding of species' responses to climate by combining species distribution modelling with seed production. Hence they can assist conservation strategies for a species that that faces anthropic and natural threats.

Uninvited conservation of venomous snakes

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The habitats of the Greek meadow viper are intensively grazed by sheep flocks. There is an 1-4% fatal bites on sheep/flock/year. The intentional killing of meadow vipers is common. We using first hand contact with locals and indirect raising awareness. We looking on the most efficient method in a highly diversificating environment. We have find that the intentional killing is less abundant than predation pressure. However the spatio-temporal prevention of snakebites has a negative effect on sheep mortality and snake killing. We have field based results of the relevance of in situ conservation and significance of the interest of local shepherds and stakeholders.

The pseudoscorpion fauna of the Kiskunság National Park and the Buda Mts (Arachnida: Pseudoscorpiones)

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Pseudoscorpions (Pseudoscorpiones) are a meso-diverse order of the classis Arachnida with more than 3700 described species worldwide. Investigations on the group has an almost 150 years long tradition in Hungary, with 53 species belonging to 9 families recorded for the country until the end of 2015. However, the pseudoscorpion fauna of the country is still understudied, and great landscape areas and national parks are still partly or totally undiscovered regarding to the group. On the course of the present study the pseudoscorpion materials of the Hungarian Natural History Museum (Budapest, Hungary) and further materials collected by the author were investigated.
The Kiskunság National Park was established in 1975, as the second national park of Hungary. On course of this study, ten pseudoscorpion species from five families are recorded for the area. As there were no earlier pseudoscorpion data reported from the Kiskunság National Park, all of the found species are new for the area.
Until recently nine pseudoscorpion species was known from the Buda Mts. Within this study, twelve species belonging to five families are recorded for the area, eight of them new for the Buda Mts. The majority of this area is protected and belongs to the Buda Protected Landscape Area, which was established in 1978 in order to preserve the natural assets of the Buda Mts in variable habitats.

Evaluating the perception of visitors on amphibians and reptiles at an archaeological site along the Black Sea Coast

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The main purpose of our study was to determine if visitors' perception can be used in advantage of wildlife (particularly amphibians and reptiles) inhabiting the ruins of Histria Archaeological Complex, part of Danube Delta Biosphere Reserve, Romania.

Using the questionnaire method, we aimed to understand how visitors perceive the encounter with three main groups of herpetofauna: turtles and tortoises, frogs and toads, snakes.
Visitors manifested enthusiasm when encounter turtles and tortoises (89%) or frogs and toads (59%), but only 33% of them showed a positive reactions on snakes.
We are confident that with an adequate management historical sites can provide both a habitat for wildlife and an opportunity to educate the public in order to mitigate the negative reactions induced by snakes.

Comparing Nest site characteristics of Great-spotted Woodpecker in two bottomland riparian forest sites in the presence of the invasive tree species

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The current study has held at two sites in the Central Tisza Landscape Protection Area. The sites are non-managed, old-growth riparian, Willow-Poplar forests, with the high number of invasive trees, especially the North-American Green ash and Boxelder maple.
Through river controls and the spread of invasive species, the populations of native tree species in riparian areas are decreasing in central Europe.
Nest trees were mapped in two years, at two sites with different species composition. Species, DBH, height and condition of trees were recorded in 0.05 ha plots for nest sites and random locations. We compared nest site utilizations between sites.
Nest sites had more old, decaying native trees and less invasive trees even at the study site, where invasive trees are older and the preferred traits could be find in lower proportions. Birds used old decaying willow trees for nesting.
Most of the trees in the study areas are invasive. Nest sites had higher ratio of old decaying or dead native trees than random plots. Forest parts without such willow trees were avoided.
The study species is the most generalist woodpecker species in Europe and it is the main cavity excavator in such transformed habitats as well. It is important to study its habitat preferences for the protection of cavity-nesting community as well.

Are bomb crater ponds important habitats for amphibians?

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Habitat loss is a major factor in global decline of amphibians. Secondary aquatic habitats created by human activities such as bomb crater ponds can have important role in conservation. We carried out a field quasi-experiment in Hungary to study spatiotemporal variation in amphibian assemblages, vegetation structure and their interactions comparing grazed and non-grazed marshes and bomb craters. I found that these ponds are important habitats of amphibians and reptiles. In

spring marshes and bomb craters that are not intensively grazed have diverse vegetation that ensured better breeding sites. Despite their anthropogenic origin, these ponds act as important contributors for aquatic biodiversity and should be maintained rather than eliminated. Bomb craters with permanent water level behaved as an aquatic refuge for amphibians.

Gardens surrounded by intensive agricultural landscape could act like havens for birds in winter.

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The link between agricultural changes and bird population declines is well documented. However, few studies focused on winter, although changes in practices make winter bird survival harder, especially for seed-eating passerines, by reducing seed availability. On the other hand, as more and more people supply birds with food in their gardens, we expect those gardens to play a major role in maintaining populations by acting as havens. Using the French Garden Birds program, we examine the link between the intensification of surrounding landscape and the coming of birds in garden. We found differences in birds' abundance and phenology of visiting, in link with the intensification of surrounding landscape. These differences depend on the species degree of dependence of agricultural landscape. These results suggest that providing food, in winter in gardens, attracts seed-eaters and could help to improve survival during the cold season, especially in an intensive landscape.

Impact of sown flower fields on pathogen prevalence in Bombus pascuorum

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What is the influence of sown flower patches, as a conservation measure for wild pollinators, on pathogen prevalence, a known driver for pollinator decline. Pathogen presence in B. pascuorum, in flower strips and control locations was determined by PCR technique, the influence of the environment and sown flower strips on pathogen presence was investigated with GLM models. The pathogen prevalence in the flower strips is related to surrounding landscape elements; In intensively managed landscapes, the sown flower strips contained a higher degree of pathogen prevalence compared to the control regions. Our research provides a first insight into the effect of a pollinator conservation measure on an important driver of decline, i.e. disease. This can provide better insight as how to implement certain measures to maximize their effect on conservation.

Where have all the Villus gone?- Story of wetlands in Sri lanka and livelihoods of villagers; case study in Mahaweli floodplains, Sri Lanka

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Natural lakes in floodplains of Mahaweli River of Sri Lanka (locally know as 'Villus') is affected by anthropogenic activities including construction of dams. This study investigates changes in biodiversity of Villus vs. the livelihoods of locals. Vegetation and fish sampling in four selected villus, were done to quantify the diversity of plants and fish in Villus. Socio economic survey of individuals representing 100 families,were conducted to find out importance of Villus on their livelihoods. The dam construction has caused reduction in amount of water received by villus. Dams and some other human activities reduced abundance of economically important plant and fish species eventually causing adverse impacts on livelihoods of villagers. The results highlight the exigency in conservation of these ecosystems. Enthusiasm of villagers to minimize anthropogenic impacts on Villus and the potential of implementing conservation programs with their participation were also identified.

Detection of singlet oxygen in cultured Symbiodinium cells, the photosyenthetic partner of the coral Pocillopora damicornis

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Coral bleaching is an important environmental phenomenon, whose mechanism has not yet been clarified. The involvement of ROS has been implicated, but direct evidence of what species are involved and their mechanism of production are unknown. Fluorescence imaging by using confocal laser scanning microscopy, stereo microscope, combine with biochemical and physiological techniques were used. We demonstrate, for the first time, both intra- and extracellular 1O2 production in Symbiodinium. Extracellular 1O2 has the potential to mediate the breakdown of symbiotic interaction between zooxanthellae and their animal host during coral bleaching. Symbiodinium cells living inside the coral host, the external singlet oxygen sensitizer(s) which are produced due to different environment stresses, has the potential to interact with the animal host and could be involved in expulsion of Symbiodinium.

Network-based indicators of key species in food webs

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A wide range of different network indices can be used to characterize and compare ecological communities, but it can be difficult to choose the most adequate ones for certain ecological

problems; in our case to indentify keytone species. We examined the correlation of the most popular structural network indices (TL, DC, BC, CC, keystone indices, TI, WI, TO, WO) with Libralato's KS (Keystoneness) index in different aquatic food webs by the usage of network analysis. Results show different centrality ranks for different network indices, calculated for the same set of food webs, quantify the similarity of particular indices, help ecologists to match adequate tools to particular problems. Our research contributes to a more efficient systems-based conservation framework, and it can give a broader view on the identification of keystone species.

Differences in composition and biomass of nestlings' food between urban and forest great tits

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As human population is growing, the number and extent of cities are also increasing. Urban environment has various effects on the reproduction of wild animals living there, for example songbirds in cities usually have lower clutch size, nestling weight and nestling survival than their conspecifics breeding in natural habitats. One of the possible explanations for this is that urban and natural environments differ in the availability of good-quality food for nestlings, with less and/or lower quality food available in the cities. In order to test this hypothesis we studied great tits' (Parus major) chick-feeding behaviour in two urban and two forest habitats. Great tits primarily feed their nestlings with arthropods, especially lepidopteran caterpillars. To record parental behaviour and collect data on nestling diet, we placed small, hidden cameras on the nestboxes when nestlings reached the age of 9-11 days. From these video recordings we determined parents' feeding frequency, the type of delivered nestling food (caterpillar, other arthropods, other food) and also measured the length and width of each prey item to calculate its volume as a proxy for prey biomass. Using these data we will test whether, according to the food limitation hypothesis, urban great tit nestlings received less per capita food, or different type of food items than nestlings reared by forest pairs.

Salinity tolerance of green frog (Pelophylax kl. esculentus) during early developmental stages

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My study tested the ability of a vurnerable amphibian with a wide range to cope with increased salinity, a high risk in the coastal area. We used freshly deposited clutches from Hyla arborea which were found in a random pond. Then we separated them and they were introduced in different plastic boxes filled with salt water at different salinity concentrations: 3‰, 6‰ and tap water. We observed that the adapt capabilities of eggs and larvae were pretty good, and we had a 50% chance of

survival even in the boxes which had a 6‰ salinity concentration. We were surprised to find that this Hyla arborea species can adapt pretty well. It is a part of a wide range of studies assessing the impact of increased salinity on freshwater communities by focusing at this stage on individual species responses.

Attitudes and Perceptions on Human-Bear Conflicts: A Case Study in Two Transylvanian Counties

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The Transylvanian landscapes still have the specific particularity of being strongly connected, largely traditional social-ecological systems. On the one hand this strong connection means the people's direct use of ecosystem services offered by the landscape. On the other hand it also means that the people are exposed to the damages caused by this ecosystem (ecosystem disservices). These damages are most often caused by species like the Carphatian brown bear (*Ursus arctos*), a species both emblematic and legally protected. In this case it is particularly important to understand the type and characteristic of the conflicts, because these will strongly influence the personal and social tolerance towards bears. The goal of my research is to understand the main drivers of these conflicts in the Eastern Carphatians, one of Romania's most important human-bear conflict zones (by the opinion reflected in the media), considering the socio-economic background and the ecological drivers of the conflicts, as well as the importance of the context-dependent solutions.

Ethnoentomology in Central Europe - folk taxonomy, nomenclature, medicinal and other uses, folklore, and nature conservation

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Background: There is scarce information about European folk knowledge of wild invertebrate fauna. We have documented such folk knowledge in three regions, in Romania, Slovakia and Croatia. We provide a list of folk taxa, and discuss folk biological classification and nomenclature, salient features, uses, related proverbs and sayings, and conservation.
Methods: We collected data among Hungarian-speaking people practising small-scale, traditional agriculture. We studied "all" invertebrate species (species groups) potentially occurring in the vicinity of the settlements. We used photos, held semi-structured interviews, and conducted picture sorting.

Results: We documented 208 invertebrate folk taxa. Many species were known which have, to our knowledge, no economic significance. 36% of the species were known to at least half of the informants. Knowledge reliability was high, although informants were sometimes prone to exaggeration. 93% of folk taxa had their own individual names, and 90% of the taxa were embedded in the folk taxonomy.
24 species were of direct use to humans (4 medicinal, 5 consumed, 11 as bait, 2 as playthings). Completely new was the discovery that the honey stomachs of black-coloured carpenter bees (*Xylocopa violacea*, *X. valga*) were consumed. 30 taxa were associated with a proverb or used for weather forecasting, or predicting harvests. Conscious ideas about conserving invertebrates only occurred with a few taxa, but informants would generally refrain from harming firebugs, field crickets and most butterflies. We did not find any mythical creatures among invertebrate taxa. Almost every invertebrate species was regarded as basically harmful. Where possible, they were destroyed or at least regarded as worth eradicating. However, we could find no evidence to suggest any invertebrate species had suffered population loss as a result of conscious destruction. Sometimes knowledge pertaining to the taxa could have more general relevance, and be regarded as folk wisdom concerning the functioning of nature as a whole.
Conclusions: The high number of known folk taxa suggests that it would be worth conducting further ethnoentomological investigations in other areas of Europe.

Using marketing-based tools to reduce the consumption of wildlife products in Nicaragua

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Illegal Wildlife Trade is one of the greatest threats for the sea turtles in Nicaragua. For that reason, several awareness raising strategies have been developed in the past. Environmental education and information campaigns created for this purpose have had limited impact on behavioural change. This research has used marketing- based tools to change behaviours of the primary users of sea turtle products in Nicaragua. It is the first time that this approach has been used in the country This study has guided a detailed profiling of the consumers leading to a communications campaign targeting the consumers to affect behaviour change.