

CCME Regional Conference 2018

Coexistence with Predators

Shamir Research Institute, Katzrin 13-14 Dec 18

Day 1

- 10:00 Welcome – Dror Ben-Ami, Dan Malkinson, Arian Wallach, Alon Reichman
- 10:20 Compassionate conservation and predators – Dror Ben-Ami
- 10:40 The dynamics and the management of the wolves in the north of Israel - Alon Reichman
- 11:00 From Individuals to Populations: How and Who Do We Manage for? - Dan Malkinson
- 11:20 Human-hyena interactions in Ein-Vered, Israel: A case study for conflict management - Rona Nadler and Asaf Ben David
- 11:40 Coffee break
- 12:00 Effective Nonlethal Strategies to Minimize Livestock Losses to Wolves (30 min) – Suzanne Stone
- 12:40 Managing European Wolves: Views of Future Decision Makers in Germany and the Netherlands - Tanja Straka
- 13:00 Lunch
- 14:00 Killing wolves to prevent predation on livestock may protect one farm but harm neighbours (30 min) - Francisco J. Santiago-Ávila
- 14:40 LIFE Projects for Human-Wildlife cohabitation in the EU - Andre Zhulpa Camporesi
- 15:00 Cattle-predator management in the Golan – local rancher
- 15:20 Techniques to change wolf routines and reduce livestock killing (30 min) - Diederik van Liere
- 16:00 Human-mediated ‘landscapes of fear’ shape trophic cascades in shared ecosystems - Gavin Bonsen
- 16:20 Sanitation effect on Gazelle populations in the Golan Heights - Amit Dolev
- 16:40 Dingos and cattle in Australia (30 min) – Arian Wallach
- 17:20 Coffee break
- 17:40 Roundtable discussion – Applying international lessons to Israel

19:00 Finish

19:30 Dinner

Day 2

Field excursion which will be limited to invited guests

5:00 Wolf spotting with Itamar Yairi

9:00 Breakfast

10:00 Visit local ranches with predator issues. The participants will include international and local experts on livestock-predator conflict.

15:00 Finish

The dynamics and the management of the wolves in the north of Israel

Alon Reichman, Israel Nature Reserves Authority

In the 1980's, observations of wolves in the Golan were very rare, but since 1993 there has been an increase in the number of observations. Parallel to this increase there has also been an increase in livestock predation by wolves. The increase in livestock predation led to many poisoning events that cause serious damage to vulture and hyenas population in the Golan. There is also a concern that the increase in the number of wolves will impact on the ecological system in the Golan. In the lecture I will discuss the reasons for the increased Wolf population, the efficiency of protection methods, and I will estimate the effect of wolves on the gazelle's population.

From Individuals to Populations: How and Who Do We Manage for?

Dan Malkinson – Shamir Research Institute and Dept. of Geography and Environmental Studies, University of Haifa.

The continuously expanding human population, demographically, as well as in geographical space, results in increasing interactions with wildlife populations. Some of these interactions yield unique encounters which human urban dwellers would not experience otherwise, and provide a unique opportunity for people to interact with wildlife. In other cases, such encounters result in antagonistic interactions. To alleviate such conflicts traditional management tools are commonly practiced – hunting.

Culling wildlife populations seemingly provides convenient and feasible means to control population growth, and hence reduce human-wildlife conflicts. When addressing these conflicts at the population level, the fate of any individual animal is irrelevant. Achieving the management goal, via population reduction, does not necessitate consideration of individuals. Financial considerations, which commonly constrain the authorities' abilities to carry out management plans, dictate the manner in which human-wildlife conflicts are resolved.

Population level considerations are the scale at which management considerations are commonly addressed. Given the above arguments, and the relatively low cost of hunting, facilitates inexpensive management strategies to cull populations. Yet, review of the literature, suggests that for many species such an approach is insufficient. Hunting has not been demonstrated in these cases as a successful mean to reduce population sizes, and hence reduce human-wildlife conflicts. Thus, alternative, population level, means for controlling populations will be discussed.

Human-hyaena Interactions in Ein-Vered, Israel: A Case Study for Conflict Management

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In Israel, human population growth, coupled with natural habitat fragmentation and destruction over the past few decades, has led wildlife to approach human settlements more frequently and develop a sense of reliance on anthropogenic food sources. The presence of large carnivores such as the IUCN red listed Striped hyaena (*Hyaena hyaena*), provoke strong feelings among residents who mount pressure on the national wildlife authority by means of official complaints to municipal officials, the media, and administrative appeals, to act in favor of evicting the animals from its changing environment. Since the wildlife authority in Israel is not inclined to cull hyaenas, there is a need to manage these situations in an evolving, shared landscape.

A pilot project to minimize human-hyaena interactions was implemented over 5 months (July to November 2018) in the small town of Ein-Vered, located in the heart of the Sharon district in central Israel. The project methodology draws from a range of academic disciplines, including socio-ecology (human dimensions of wildlife), ecology, and citizen science, to reveal a holistic approach to human-wildlife conflict management.

Assessment of wildlife acceptance capacity showed resident responders had more positive (64%) than negative (15%) attitudes towards the hyaena and exhibited more mutualist than utilitarian wildlife value orientations. Sixty-five percent of the resident responders agreed with the statement "I benefit from knowing that striped hyaenas exist in the Sharon area". Hyaena tracks and poultry farm examination showed an overlap between hyaena presence and two specific farms which did not dispose of carcasses appropriately. Additionally, personal interviews revealed a tendency to put forward poultry carcasses in a deliberate attempt to feed the hyaena. Residents reported 29 sightings within the course of the project, most accompanied by exact GPS location, time, date, and video or photographic imaging.

Although quantitative data to demonstrate a decline in fear perceptions among residents was lacking, the project did manage to have a positive impact by building a platform to connect residents and the wildlife authority, which can help inform management decisions. Additionally, the project revealed the true nature of conflict within the specific context of Ein-Vered and a proposed solution to the underlying attractants for hyaenas.

The interdisciplinary framework of the human-hyaena interaction project in Ein-Vered is a novel approach to managing conflicts between humans and red-listed large carnivores in Israel. It serves as a potential management tool for the wildlife authority and a service for local municipality needs. The project provides residents with a sense of involvement in the interests and future endeavors of the community, bringing to light the responsibility of maintaining good sanitary conditions inside the town and a dialogue about the place of wildlife within the community.

Effective Nonlethal Strategies to Minimize Livestock Losses to Wolves

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Wolves (*Canis lupus*) are an important native species that help cull disease and reduce overpopulation of ungulates and other prey species. Most conflicts with wolves occur when they prey on livestock. Traditionally, wolves are killed in response to these conflicts which can threaten wolf populations and impair their beneficial influence on the land. Nonlethal methods such as livestock carcass management, guardian animals, lighting and sound deterrents, fladry and other tools to protect livestock effectively minimize losses in small-scale operations. Conversely, nonlethal strategies are often presumed ineffective or infeasible for migratory livestock operations in remote, rugged terrain. We report a 7-year case study where we strategically applied nonlethal deterrents and animal husbandry techniques protecting over 10,000 sheep (*Ovis aries*) and several wolf packs on rugged mountainous terrain in central Idaho. We compared data on sheep depredations in the 1,000 square mile study area versus the adjacent wolf-occupied area where sheep were grazed without added nonlethal protections. Over the 7-year period, weighted sheep depredation losses to wolves were 3.5 higher in the Non-protected Area than in the Protected Area. Furthermore, no wolves were killed within the Protected Area and sheep depredation losses to wolves in the Non-protected Area were 0.02 % of the total number of sheep present, the lowest loss rate in wolf range statewide. Wolves, including entire packs, were frequently killed in the Non-protected area which still resulted in higher livestock losses during this same period. This presentation will focus on best practices using nonlethal methods to minimize livestock losses to wolves.

Managing European Wolves: Views of Future Decision Makers in Germany and the Netherlands

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Wolf management actions are often controversial and their support varies among stakeholder groups. Understanding the sources of diversity for the acceptability of management actions is useful for conservation practitioners. In this study, we explored in a quantitative survey with German and Dutch students i) the acceptability of wolf management actions in scenarios varying in their severity, ii) to what extent cognitions (wildlife value orientations) and emotions (valence) predict the acceptability of wolf management actions; and to iii) estimate discrete emotions (e.g. joy or fear) towards wolves. We found that while lethal control and doing nothing were clearly non-accepted management actions, educating the public about wolves was clearly accepted. However, students were more likely to accept lethal control in more severe (wolf kills human) compared to less severe situations with wolves (wolf seen). Further, emotions added to the understanding of responses to management actions next to cognitions. In both countries, negative emotions of anger and disgust were hardly felt towards wolves while positive emotions of joy and interest were moderately to strongly felt. Fear was the only negative emotion that was moderately felt, yet less strongly than the positive emotions. Our results show that while educating the public about wolves is clearly desired, it is important to realize that responses to management are not only guided by what people think, but also what people feel. Lastly, while managers and policy makers tend to predominantly address negative emotions in relation to wolves, positive emotions are often overlooked which calls for critical reflection.

Killing wolves to prevent predation on livestock may protect one farm but harm neighbors

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Abstract

Large carnivores, such as gray wolves, *Canis lupus*, are difficult to protect in mixed-use landscapes because some people perceive them as dangerous and because they sometimes threaten human property and safety. Governments may respond by killing carnivores in an effort to prevent repeated conflicts or threats, although the functional effectiveness of lethal methods has long been questioned. We evaluated two methods of government intervention following independent events of verified wolf predation on domestic animals (depredation) in the Upper Peninsula of Michigan, USA between 1998±2014, at three spatial scales. We evaluated two intervention methods using log-rank tests and conditional Cox recurrent event, gap time models based on retrospective analyses of the following quasiexperimental treatments: (1) selective killing of wolves by trapping near sites of verified depredation, and (2) advice to owners and haphazard use of non-lethal methods without wolf-killing. The government did not randomly assign treatments and used a pseudo-control (no removal of wolves was not a true control), but the federal permission to intervene lethally was granted and rescinded independent of events on the ground. Hazard ratios suggest lethal intervention was associated with an insignificant 27% lower risk of recurrence of events at trapping sites, but offset by an insignificant 22% increase in risk of recurrence at sites up to 5.42 km distant in the same year, compared to the non-lethal treatment. Our results do not support the hypothesis that Michigan's use of lethal intervention after wolf depredations was effective for reducing the future risk of recurrence in the vicinities of trapping sites. Examining only the sites of intervention is incomplete because neighbors near trapping sites may suffer the recurrence of depredations. We propose two new hypotheses for perceived effectiveness of lethal methods: (a) killing predators may be perceived as effective because of the benefits to a small minority of farmers, and (b) if neighbors experience side-effects of lethal intervention such as displaced depredations, they may perceive the problem growing and then demand more lethal intervention rather than detecting problems spreading from the first trapping site. Ethical wildlife management guided by the best scientific and commercial data available⁹ would suggest suspending the standard method of trapping wolves in favor of non-lethal methods (livestock guarding dogs or fladry) that have been proven effective in preventing livestock losses in Michigan and elsewhere.

LIFE Projects for Human-Wildlife cohabitation in the EU - Results and success of the MEDWolf program and introductive steps of LIFE EuroLargeCarnivores

Andre Zhulpa Camporesi, Elmauer Institute

Europe has quite recently witnessed a critical increase of large carnivores population, especially wolves and bears, and this has led to the institution of several programs for the facilitation of the coexistence between them, and the human population.

One example is the MEDWolf Project, which was launched in 2012 and ended in 2017 with a remarkable success.

Main objective: reduce HWC and livestock safety issues

Key problems: serious increase of wolves and mis-management

Key actions: mediation among stakeholders, analysis of damages, prevention measures, groups of support, scientific+social approach

Overview of results: evaluation of wolf presence, functioning communication network, reduction of attacks, awareness campaign, ecotourism trips.

LIFE Euro Large Carnivores Project has started only last year and it is now in the introductive stage.

It focuses on 4 species, and it involves 16 countries of the UE. It also involves both the national and international levels, and the expected results include a wide shared information platform and the realization of long-term plans for the cohabitation of humans and carnivores and a future efficient management of wildlife.

One aspect that the EU LIFE projects stress enough is the importance of shared knowledge and trustful communication among stakeholders and the urgency of finding simple yet efficient solutions which can be implemented at a transboundary level while respecting the traditional methods of farming and rural living and promoting a scientific and positive approach to wildlife renewal.

Techniques to change wolf routines and reduce livestock killing

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A wolf depends on local experiences. She/he develops routines. It may include development of an orientation and routine to select livestock. Prevention is achieved by changing the reinforcements in the routine. We assume 4 levels of reinforcement when livestock is killed: at the level of the approach, the chasing, the biting and the consumption. Techniques to reduce livestock killing need to interfere with positive reinforcement or result in meaningful negative ones. Fences (electric or not) such as recommended for sheep in the EU, may demotivate the wolf from approaching. However, our research shows they are ineffective (van Liere et al. 2013, *Appl. Anim Behav Sci.* 144). Surplus killing may even be enhanced by fences. We aim to use responses of a few sheep in the herd to a wolf's approach via sensor technology to provide an automated deterring action. To link such deterring directly to the wolf's approach is essential in changing a learnt behaviour. Already, we developed a collar that should be applied to all sheep, punishing the wolf's biting at the neck of the sheep. In addition there are nausea causing substances that can be applied to sheep meat, demotivating consumption by parents and pups. Sheep need not be an "easy pick". However, effectiveness of any approach depends on the availability of alternative food sources.

Human-mediated 'landscapes of fear' shape trophic cascades in shared ecosystems

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Abstract

Apex predators play important ecological roles, influencing entire ecological communities by driving trophic cascades through their predatory force on large herbivores and smaller predators. The effects of predators on their prey are determined not only by direct predation, but also by the risk responses of prey. Predation risk varies across space and time, creating a 'landscape of fear' that prey must carefully navigate. Similar landscapes are created for predators in regions where the risk of persecution varies. Hunting and persecution are widespread, often exacerbated in areas where human-predator conflict exists (e.g. around livestock farming). As such, few areas remain where coexistence and tolerance are high. Our research investigates how human landscape use and tolerance of predators in the Middle East can drive trophic cascades by creating landscapes of fear for wolves. Country borders and differences in agricultural practices create a contrast between high and low tolerance of wolves. Persecution risk varies along a gradient from high to low based on protection laws and agricultural practices; the highest being in areas with free-range livestock and low protection, and the lowest in areas with no free-range livestock and high protection. Using remote camera trapping, we are assessing spatiotemporal movement and behaviour in wolves, medium-large herbivores, mesopredators and small mammals. Sampling locations were selected based on a set of predetermined variables thought to influence animal movement. Preliminary data from the Arava Valley and Negev Desert show increased vigilance in predators in free-range livestock areas. Conversely, where agriculture is dominated by crop farming, predator activity and confidence are heightened near human habitation. Evidently, human influence on predator activity and behaviour is not only related to human density, but also landscape use and tolerance of predators; this can have cascading effects through trophic systems where biodiversity is altered depending on our relationships with predators.

Sanitation effect on Gazelle populations in the Golan Heights

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Background: Large decrease was estimated in the gazelle population in the Golan Heights at the last decades. Analyzing the possibilities supported the effect of overabundance jackal populations which decrease the recruitment of gazelle population and prevent their recovery. In part of the rehabilitation efforts, culling management of jackals were done from 2005. In 2011 we add sanitation management that includes collecting cattle carcasses from pastures in all Israel. The average weight of carcasses was about 300 ton a year from the Golan Heights. During this period there was decrease in culling rate of jackals and wolfs. Our work assesses the effect of combine management (sanitation & culling) on the gazelle population in the Golan Heights.

Methods: gazelle population size was estimated from 5 nights projector transects for period from 2000, and yearly gazelle survey in the southern Golan Heights. Jackals and wolf dynamic was based on annual predator survey.

Results: During the period of 2005-2011(before the sanitation management), we found decrease in gazelle density in most transects, whereas at the following period (2011-2017) that include the sanitation management, there was increasing in the gazelle density. The juvenile: female ratio was 5-28% during 1997-2011, while it increases to about 80% during 2015-2017.

Discussion: Increase the gazelle population, suggest that combine management of culling with sanitation, contribute to the recovery of gazelle population.