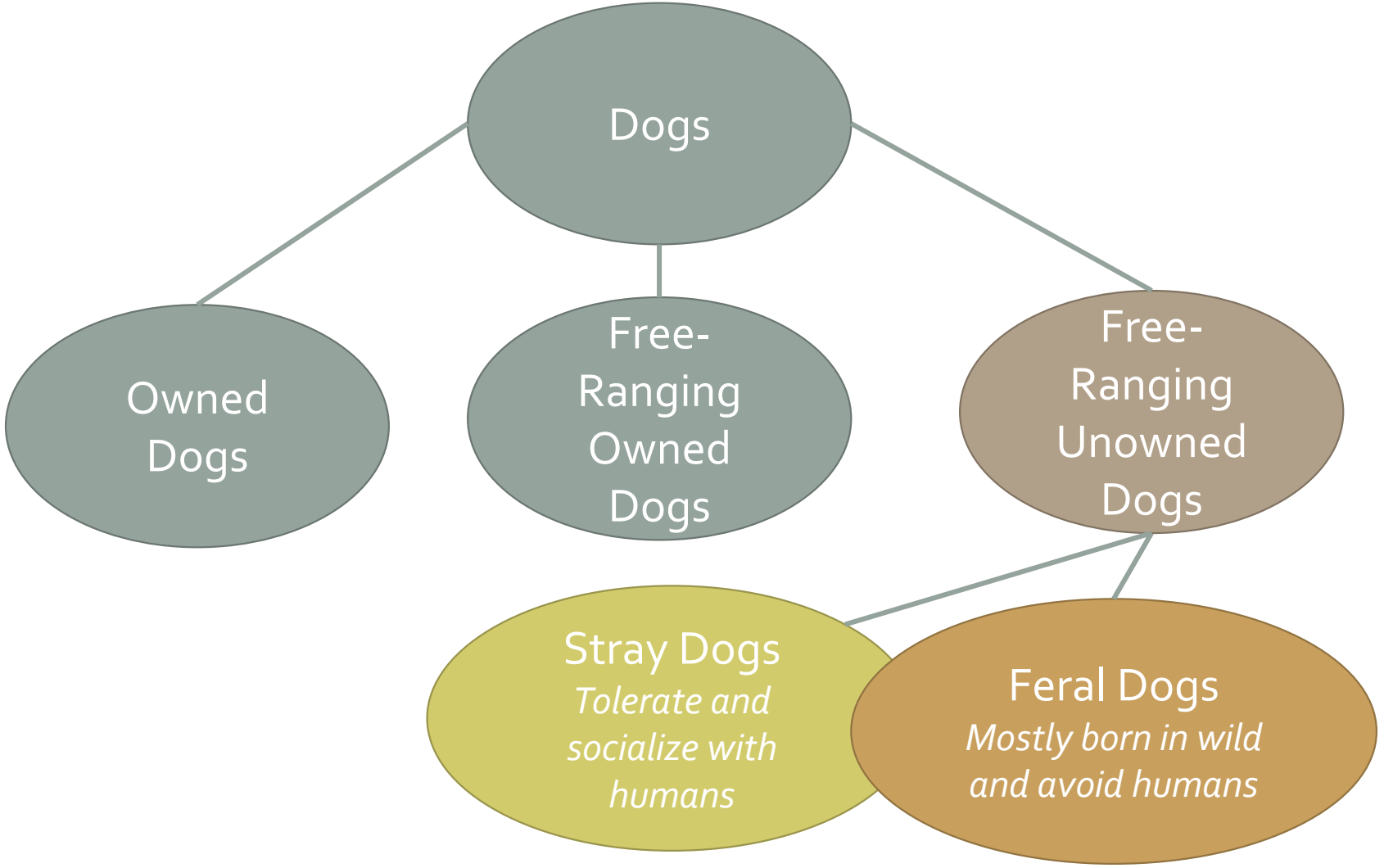
Unowned & Feral Dogs and Wildlife

our **«best friends»** are becoming a treat to wild life

The Difference Between

Dogs

Feral Dogs



Feral Dogs are «group of animals that have been together long enough that their innate behaviors, physiology, or anatomy have changed from the original domesticated version»

Bonnie V. Beaver DVM, MS, Dipl. ACVB, Chapter 4: Canine Social Behaviour, in Canine Behavior (Second Edition), 2009, Pages 133-192, https://doi.org/10.1016/B978-1-4160-5419-1.00004-3

Major Impacts of unowned & Feral Dogs on Biodiversity

- Studies suggest that **after cats and rats**, unowned and **feral dogs are the third most harmful** human-introduced species for the wild-life. Because:
  - They contributed to the **extinction of almost 12 animal species** including wild birds:

New Zealand Quail

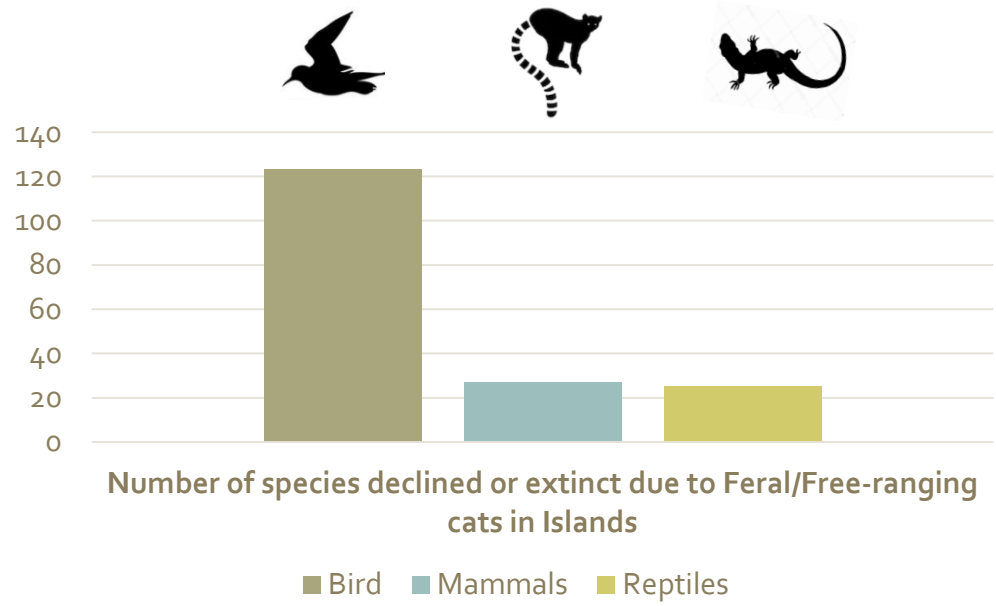
Marcano's Solenodn

- They **currently threaten nearly 200 species worldwide to extinction**, some of which are critically endangered.

Referanslar: (1) BBC News, Science and environment, Dogs' becoming major threat' to wildlife By Navin Singh Khadka https://www.bbc.com/news/science-environment-47062959
Doherty, T. S. et al. (2017). The global impacts of domestic dogs on threatened vertebrates. *Biological Conservation*, *210*(July 2016), 56–59. https://doi.org/10.1016/j.biocon.2017.04.007

Feral and free-roaming Cats are actually a bigger problem

- Feral & free-roaming cats **cause of at least 63 species extinctions- 40 bird, 21 mammal, 2 reptile species** -according to a 2016 analysis of invasive species impacts
- A 2011 review of wildlife reveals that the impact of Feral/free-roaming cats is worse in Islands: **they cause the decline or extinction of 123 species of songbirds, parrots, seabirds and penguins; 25 species of reptiles and 27 species of mammals, including a lemur and a bat.**

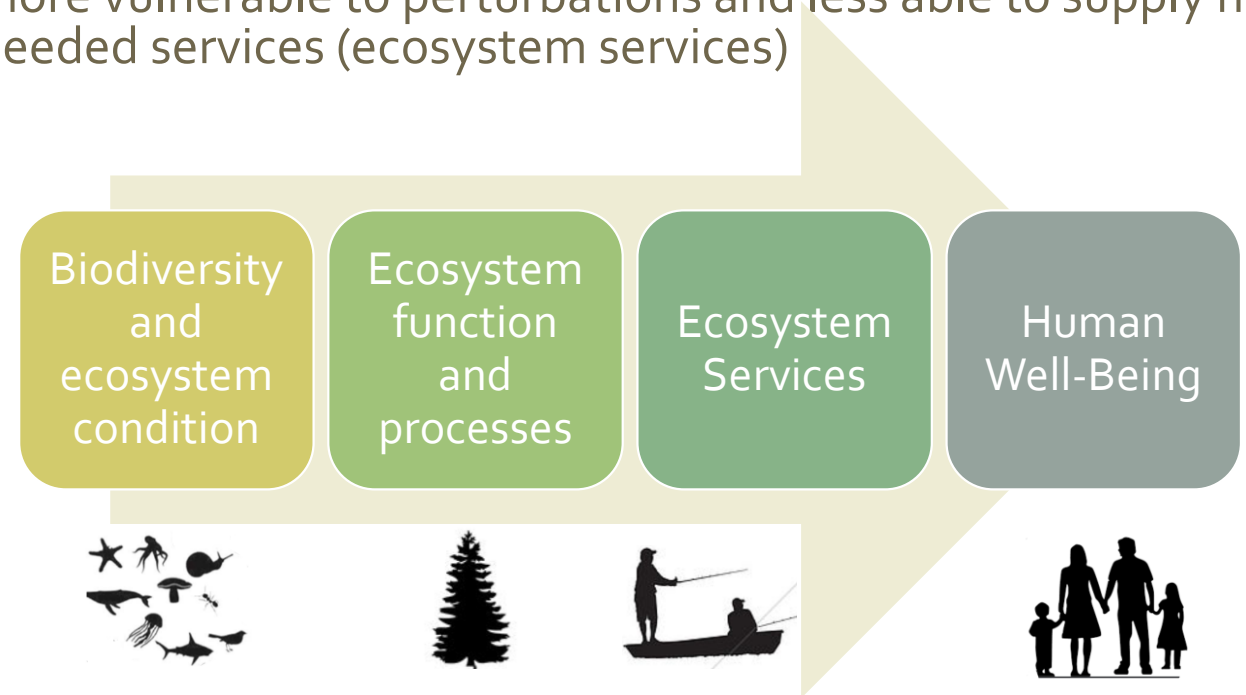


Referanslar:
(1) Doherty, T. S. Et. Al. (2016). Invasive predators and global biodiversity loss, *113*(40), 11261–11265. https://doi.org/10.1073/pnas.1602480113
(2) Medina, F. M. Et al. (2011). A global review of the impacts of invasive cats on island endangered vertebrates. *Global Change Biology*, *17*(11), 3503–3510. https://doi.org/10.1111/j.1365-2486.2011.02464.x

Why loosing species or biodiversity is a concern?

Biodiversity is essential for ecosystem services and hence for human well-being.

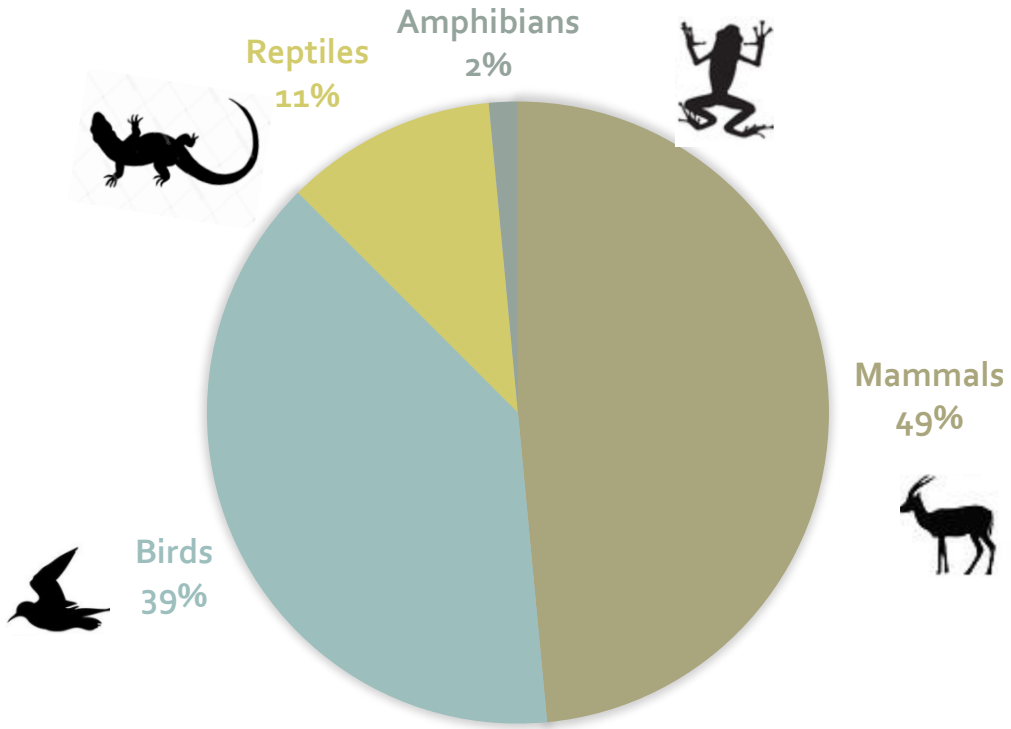
- **Biodiversity is variety of life on Earth**
- Biodiversity includes diversity within species (genetic diversity), between species (species diversity), and between ecosystems (ecosystem diversity)
- **Ecosystem services: benefits to humans by nature from healthy ecosystems.** For example: food (sea food, crops), energy (wind, biofuel), recreational services (ecotourism), climate regulation (flood control, C cycling)
- **Biodiversity loss disrupts the functioning of ecosystems**, making them more vulnerable to perturbations and less able to supply humans with needed services (ecosystem services)



200 Species are under threat by Feral & unowned Dogs

Feral and free-ranging dogs threatens 200 species to exctinction, **30 are classed as critically endangered, 71 endangered, and 87 vulnerable in the IUCN Red List of at-risk species.**

IUCN : The International Union for Conservation of Nature



Percent of extinct or threatened vertebrate species (n:200) that are, or were, negatively impacted by domestic dogs *Canis familiaris*

References. (1) Figure adopted from Doherty et al. 2017 *The global impacts of domestic dogs on threatened vertebrates Biological Conservation 210 (2017) 56–59*
(2) BBC News, Science and environment, Dogs' becoming major threat' to wildlife By Navin Singh Khadka https://www.bbc.com/news/science-environment-47062959

How did Feral & unowned Dogs become such an strong stressor?

There are 1.000.000.000 dogs world-wide and their population is increasing

Free-roaming dogs account for about 75% of the global dog population

Feral & Unowned Dogs as agents of disturbance:

Frequency of dog encounters with wild-life stems from **3 factors:**

(1) Human commensals: Feral dogs benefits from humans and we are everywhere.

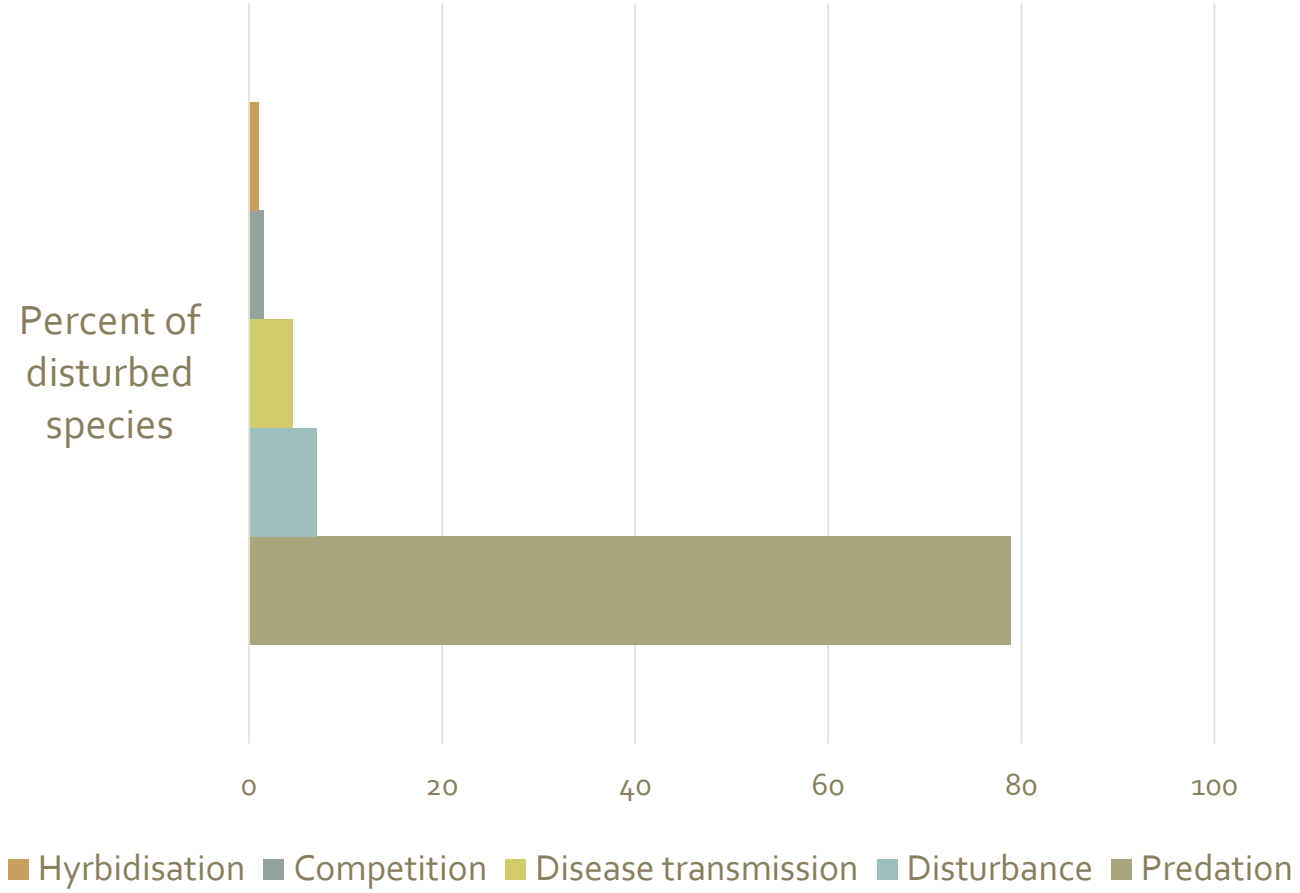
(2) Roam large areas: Feral dogs can inhabit large areas and they are mobile. Therefore, they encounter with many habitats and species.

(3) Year-around residents: Feral dogs are present during whole year time. So, their disturbance is continuous.

References. (1) Gompper E.M., 2014, Free-Ranging Dogs and Wild-life Conservation, Oxford University Press, Oxford, United Kingdom, ISBN: 978-0-19-966321-7
(2) BBC News, Science and environment, Dogs' becoming major threat' to wildlife By Navin Singh Khadka https://www.bbc.com/news/science-environment-47062959
(3) WSPA, 2011. <http://www.wspa.org.uk/wspaswork/dogs/strayanimals/> .

Means of Feral & unowned Dogs disturbance

- As predators feral & unowned dogs **kill wild animals, disturb wildlife, transmit diseases, compete** with other predators for prey, and also **interbreed** with closely related species.



References. (1) Figure adopted from Doherty et al. 2017 *The global impacts of domestic dogs on threatened vertebrates Biological Conservation 210 (2017) 56–59*

Feral & unowned Dog Predation Case Studies

Predation by the feral & unowned dogs is the main issue for the threatened species (IUCN Red List categories, Vulnerable to Critically Endangered).

- One dog potentially **killed 500 of an estimated population of 900** kiwi in Waitangi Forest in New Zealand since they are defenseless.
- Studies have shown that **dogs contributed to the extinction of at least eight species of birds**, including the New Zealand quail.
- In an Australian woodland park, **there was a 35% reduction in bird diversity and 41% reduction in abundance due** to the presence of leashed dogs.
- Dogs **recorded harassing Mongolian ungulates**: gazelle, saiga and argali.

Referanslar. (1) Young, J.K et al. 2011. Is wildlife going to the dogs? Impacts of feral and free-roaming dogs on wildlife populations. Bioscience 61, 125–132. *(2)* BBC News, Science and environment, Dogs' becoming major threat' to wildlife By Navin Singh Khadka https://www.bbc.com/news/science-environment-47062959 (3) Banks PB, Bryant JV. 2007. Four-legged friend or foe? Dog walking displaces native birds from natural areas. Biology Letters 3: 611–613. (4) Hughes and Macdonald, 2013, A review of the interactions between free-roaming domestic dogs and wildlife, Biological Conservation 157 (2013) 341–351 (5) Silva-Rodriguez, E.A. et al., 2010b. Evaluating mortality sources for the Vulnerable pudu Pudu puda in Chile implications for the conservation of a threatened deer. Oryx 44, 97–103. (6) Kruuk, H., Snell, H., 1981. Prey selection by feral dogs from a population of Marine iguanas (Amblyrhynchus cristatus). J. Appl. Ecol. 18, 197–204. (7) Taborsky, M., 1988. Kiwis and dog predation: observations at Waitangi state forest. Notornis 35, 197–202.

Feral & unowned Dogs Disease Transmission Case Studies

- **Highly endangered Ethiopian wolf** (*Canis simensis*) has suffered a number of **rabies** epidemics transmitted from dogs over the last 20 years **that reduced the population by around 75%**
- **Canine distemper virus** was transmitted from domestic dogs to threatened Lake Baikal seals (*Phoca sibirica*), resulting in further population declines of the seals
- **Rabies and canine distemper** in the Serengeti caused the loss of all African wild dog packs and 30% of lions, as well as affecting many other species

Referanslar: (1) Randall, D.A et al. 2006. An integrated disease management strategy for the control of rabies in Ethiopian wolves. Biol. Conserv. 131, 151–162.
(2) Mamaev LV, et al. 1995. Characterization of morbilliviruses isolated from Lake Baikal seals (*Phoca sibirica*). Veterinary Microbiology 44: 251–259.
(3) Cleaveland, S. et al., 2007. The conservation relevance of epidemiological research into carnivore viral diseases in the Serengeti. Conserv. Biol. 21, 612–622

Hybridization Case-Studies

- **Hybridization between dogs and grey wolves** has been investigated due to species conservation concerns
- Hybridization between dogs and coyotes has been frequently recorded
- **Hybridization is especially a concern for endangered species such as Ethiopian wolf**

Referanslar: (1) Vilã, C., Wayne, R.K., 1999. Hybridization between wolves and dogs. Conserv. Biol. 13, 195–198.
(2) Freeman, C.R., Shaw, J.H., 1979. Hybridization in canis (Canidae) in Oklahoma. Southwestern Nat. 24, 485–499
(3) Gipson, P.S., Sealander, J.A., Dunn, J.E., 1974. The taxonomic status of wild canis in Arkansas. Syst. Zool. 23, 1–11. (5) Sillero-Zubiri, C., Gottelli, D., 1994. Canis simensis. Mamm. Species 0, 1–6.

Competition Case Studies

- Camera traps from a polish study found that dogs enter caves used by lynx to take their preys
- A 2016 study suggested competition between grey wolves and dogs.

Referanslar: (1) BBC News, Science and environment, Dogs' becoming major threat' to wildlife By Navin Singh Khadka https://www.bbc.com/news/science-environment-47062959
(2) Wierzbowska A.I. et al., 2016, Predation of wildlife by free-ranging domestic dogs in Polish hunting grounds and potential competition with the grey wolf, Biological Conservation 201 (2016) 1–9

Feral & unowned dogs also affect humans

- **Economic cost** due to feral dogs **:**
  - **United States: $620 million annually.** Includes the treatment for rabies infection and livestock depredation.
  - **Asia: $52 million** for rabies vaccine program, **$10.6 million** for livestock depredation, **$179.8 million and $251.7 million** for treating human infections
- **Direct bites/Kills: Six children killed** by packs of feral dogs in Sitapur, India in 2018. At least two dozen more youngsters have been injured.
- **Attacking livestock:** On average, over 33,000 wild animals and 280 livestock are killed by free-ranging dogs on Polish hunting grounds annually.
- **Transmission of diseases, particularly rabies.**

Feral dogs are the cause for 99% of the 59,000 annual human fatalities due to rabies reported worldwide, predominantly in Asia and Africa.

References: (1) World Health Organization , Health Topics, Rabies https://www.who.int/health-topics/rabies#tab=tab_1
(2) Hughes and Macdonald, 2013, A review of the interactions between free-roaming domestic dogs and wildlife, Biological Conservation 157 (2013) 341–351
(3) Pimentel, D., Zuniga, R., Morrison, D., 2005. Update on the environmental and economic costs associated with alien-invasive species in the United States. Ecol. Econ. 52, 273–288
(4) Wierzbowska A.I. et al., 2016, Predation of wildlife by free-ranging domestic dogs in Polish hunting grounds and potential competition with the grey wolf, Biological Conservation 201 (2016) 1–9
(5) https://news.sky.com/story/six-children-killed-by-packs-of-feral-dogs-in-sitapur-india-11362736

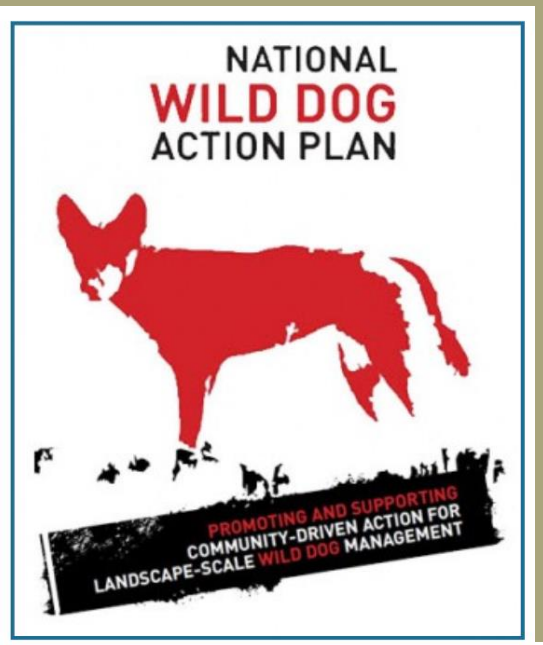
Management Measures for Stray and Feral Dogs In Europe

Stray/ Feral Dog Management Across Europe (World **S**ociety for the **P**rotection of **A**nimals Member Countries-31 European Country)

1. **Protecting Owned Dogs to become Stray/Feral:**
    1. **Licensing and Registration:** In 22 countries it is compulsory for dogs to either be licensed or registered
    2. **Identification: the implantation of a microchip** or microchip collar in 24 countries, tattooing in 18 countries
2. **Stray/Feral Control:**
    1. **Shooting:** 5 countries use municipal hired contractors to shoot stray/feral dogs (Albania, Armenia, Azerbaijan Republic, Moldova and Ukraine)
    2. **Catch, neuter, release:** 6 countries catch stray/feral dogs and release after neutralization (Greece, Bosnia-Herzegovina, Bulgaria, Italy, Malta, Serbia and Spain)
    3. **Catch, provide shelter for definite time, find owner or euthanize:** 22 counties catch feral/stray dogs and hold them in shelters for certain time (range 3 – 60 days). Then stray/feral dogs **find new home or euthanized.** Countries vary in their adoption of euthanasia protocols .

Referanslar: (1) Fotoğraf: Sternrenette, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons (2) Tasker, L. (2007). WSPA, Stray Animal Control Practices (Europe).

Strict Measures in Australia



Wild dogs are considered as pests and killed in Australia.

- On 7 June 2017 the National Biosecurity Committee endorsed the Australian Pest Animal Strategy 2017–2027
- A five year National Wild Dog Action Plan was developed through the former Vertebrate Pests Committee (now the Environment and Invasives Committee) and currently implemented throughout Australia
- There are laws in every state and territory that address the need to treat all animals humanely, whether they are considered pests or not.
- People managing wild dogs are obligated to use control methods that minimise any potential pain, fear or distress.
- These obligations encompass a wide range of activities from the capture and relocation of animals, **through to poisoning, shooting or trapping.**

References:PestSmart, Centre for Invasive Species Solutions website: https://pestsmart.org.au/pest-animal-species/wild-dog/

Feral Dogs Attack Cases From Turkey

2010- A women attacked by 15-20 feral dogs at METU Forest and hospitalized

2015-A woman (Erinç Pütün) killed by the feral dogs while she was feeding them at Eskişehir

2018- 30 sheep killed by feral dogs at Muş

2020- 6 children is attacked by feral dogs and a 2 year old boy died at Şanlıurfa

References: (1) https://www.sozcu.com.tr/2015/gunun-icinden/eskisehirde-sokak-kopekleri-kadini-parcaladi-771673/
(2) https://www.hurriyet.com.tr/gundem/odtu-ormaninda-kopek-saldirilari-suruyor-15163335
(3) https://www.hurriyet.com.tr/gundem/kopek-saldirisi-sonucu-olen-2-yasindaki-davut-topraga-verildi-41503347
(4) https://www.sozcu.com.tr/2018/gundem/sokak-kopekleri-suruye-saldirdi-30-koyun-telef-oldu-2666823/

What is the solution for this canine conundrum?

- **Killing compains are not advised by** World Health Organisation (WHO) and World Society for the Protection of Animals (WSPA) **if there is efficient management organisation with time, budget and workforce.**
- **Because they** create an empty habitable area that is quickly filled by an influx of new dogs from other areas.

References: (1) BBC News, Science and environment, Dogs' becoming major threat' to wildlife By Navin Singh Khadka https://www.bbc.com/news/science-environment-47062959. Interviews with Kelly O'Meara, Humane Society International's Vice President of Companion Animals.
(2) WHO, WSPA, 1990. Guidelines for dog population management. World Health Organisation, Geneva. World Society for the Protection of Animals, London.

The Solution: Managing Dog Population

- Current guidelines for dog population management recommend a combination of vaccination and sterilization

- **Humane dog management programs :**
  - **requires time, budget and workforce**
  - gradually reduce dog populations
  - involves the spaying and neutering of dogs to restrain the current population, and mass vaccination to prevent diseases pand disease transformation

References: (1) WHO, WSPA, 1990. Guidelines for dog population management. World Health Organisation, Geneva. World Society for the Protection of Animals, London.
(2) OIE, 2011. Stray dog population control, In: OIE Terrestrial Animal Health Code., World Organisation for Animal Health.