

Hunting and persecution by humans

Humans have always used birds as a resource, while at the same time decimating species they considered undesirable. In both cases, birds are removed from a population or harmed by the side effects of such actions. Direct persecution has diminished in Switzerland thanks to better protection. Today, hunting birds is regarded as a sport and leisure activity.

To evaluate the impact of hunting and of hunting regulation, it is necessary to carefully examine whether hunting has negative effects on the distribution, population trend, demographic indicators and social structure of the species concerned. Such an examination must take into account that core areas with large, interconnected populations and a high reproductive rate are extremely important to maintain the overall population structure. Hunting regulations therefore need to consider the influence of changing environmental conditions.

Side effects of hunting: lead poisoning and disturbance

Lead ammunition is a threat to birds. Lead poisoning leads to impairment and death, affecting mainly birds of prey that feed on carrion as well as waterbirds^{8, 10, 12, 16}. In the European Union, an estimated 400 000 to 1 500 000 birds die from lead poisoning every year⁴. Scavengers (e.g. Bearded Vulture and Golden Eagle) ingest the lead when they feed on animals that have been shot but not retrieved. Populations of species that are long-lived and have a low reproductive rate are particularly sensitive to the loss of individuals. Waterbirds take up lead shot when foraging, mistaking it for food or grit. In Switzerland, the use of lead shot to hunt waterbirds has been prohibited since 2012.

In many cases, hunting causes massive disturbance, as it generally takes place in areas where visitors are scarce, and because hunters are often accompanied by dogs. Disturbance has a particularly large impact on waterbirds, as it drives them from their resting and foraging grounds, sometimes for the long term^{1, 14}. This can cause waterbirds to alter their temporal and spatial activity pattern or abandon the site^{5, 6}.

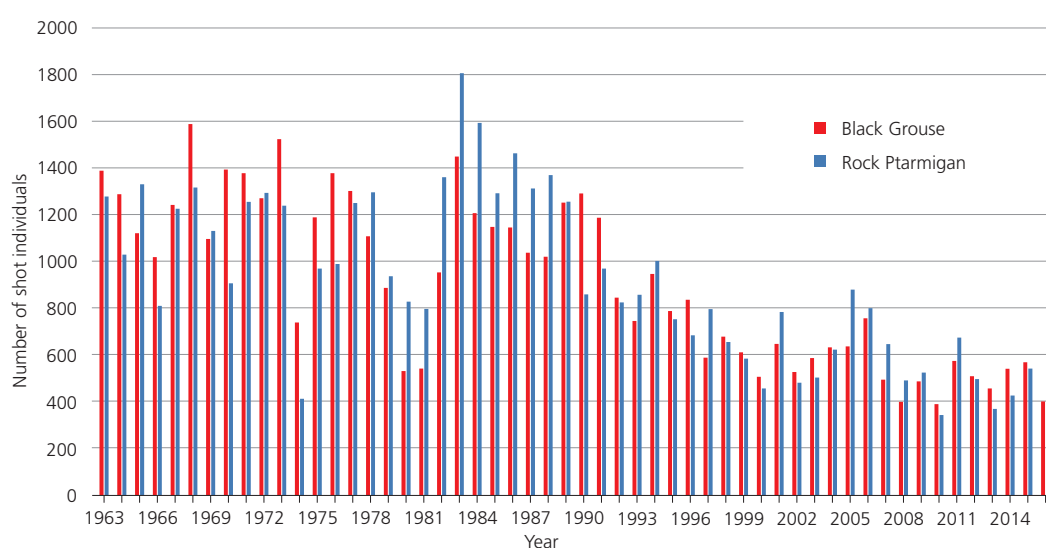
Decimation of undesirable species

In the past, humans persecuted birds they considered pests either by hunting them or destroying their nests. Breeding populations of Great Crested Grebe, Grey Heron, Golden Eagle, Northern Goshawk, Carrion Crow, Common Raven and others were decimated. Bearded Vulture and Osprey were eradicated throughout the country, the Eurasian Magpie in Ticino^{HVM}. Red Kite and Eurasian Eagle-owl were on the brink of extinction in Switzerland^{AtCHO, HVM}.

Since the first federal hunting act in 1875, interventions at the nest have been restricted, close seasons extended, and the list of game birds continually reduced. Many species whose populations had been decimated recovered as a result. The colonisation and spread of Great Cormorant and Rook are a consequence of improved international protection. Effective protection is a fundamental requirement for the successful reintroduction of extinct species, like in the case of the Bearded Vulture.

Hunting of birds along their migration routes

In many countries, migratory birds are hunted legally or illegally. The number of legally hunted migrants is hard to determine, as few hunting statistics exist¹³. In the Mediterranean region, an estimated 11 to 35 million birds are killed illegally every year². While the impact of hunting abroad on Swiss breeding bird populations is difficult to gauge, it has probably contributed to the decline of native birds like European Turtle-dove or Ortolan Bunting^{HBW, 7, 11}. The spring hunt in particular has a direct impact on breeding birds.



Numbers of Black Grouse and Rock Ptarmigan shot in Switzerland in 1963–2016, according to federal hunting statistics. Restrictions on hunting (e.g. reduction of the number of birds shot per year and per hunter; extension of the close season) are partly responsible for the decreasing hunting bag.

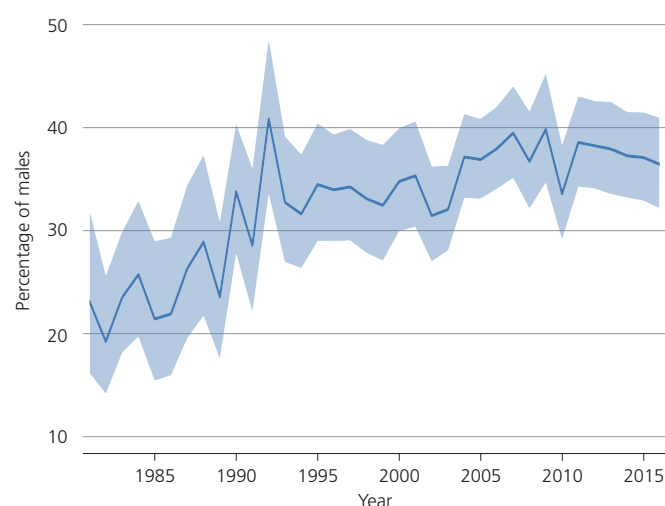
Because they are hunted, the proportion of male Black Grouse in Ticino lies far below 50%. In the 1990s, the reduction of hunting pressure due to a decline in the number of hunting permits and the extension of the close season led to a more balanced sex ratio. However, the number of males is still about 10% lower than would be expected in populations not affected by hunting. Source: Zbinden et al. (2018).

Hunting of Black Grouse, Rock Ptarmigan and Eurasian Woodcock in Switzerland

Black Grouse breeding populations in Switzerland show varying regional trends, and the species is considered Near Threatened. The size of local populations depends mainly on the weather during the breeding season and the intensity of disturbance from human recreation^{17, 19}. In many suitable habitats, disturbance from leisure activities prevents populations from reaching capacity¹⁷. From 1997 to 2016, about 550 Black Grouse males were shot every year in Switzerland. The females are protected. According to data from the «Ufficio caccia e pesca Canton Ticino», hunting raises Black Grouse mortality and produces a biased sex ratio²⁰.

The Rock Ptarmigan is another species that is classified as Near Threatened, but whether hunting contributes to its negative population trend has not been studied. On average, about 580 individuals were shot annually in the past 20 years. Locally, excessive bag limits may contribute to the decline⁹.

From 1997 to 2016, about 2000 Eurasian Woodcocks were killed in Switzerland every year, most of them originating from northern and eastern European populations. Hunting in France has been shown to increase mortality in northeastern European populations¹⁸. Hunting in Switzerland presumably has a similar effect. Since 1993–1996, the Eurasian Woodcock has almost completely disappeared as a breeding bird below 900 m in Switzerland. Besides habitat degradation, predation and disturbance, additional mortality from hunting is a possible cause of the negative trend. Data from birds tagged with transmitters show that while many native Woodcocks leave with the first



snowfall, others remain in Switzerland, sometimes as late as mid-December and thus well beyond the close season^{3, 15}.

Conclusion

In the past, human persecution had a considerable impact on the populations of many of our native breeding birds. As legal protection improved, the affected species were able to recover. But still today, there are attempts to decimate the populations of species that are considered undesirable. This is unacceptable from an ecological point of view.

Given the huge number of birds affected, legal and illegal persecution abroad presumably has an effect on our native breeding populations. In Switzerland today, hunting only affects populations at the regional level and/or in the case of certain species. Hunting of species with stable or increasing populations, regulated according to the specific circumstances, can be accepted from an ecological point of view if the threat at the European and national level is taken into account and hunting has no measurable negative effects on the distribution, population size and social structure of the species concerned. Regular monitoring of populations is a prerequisite.

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About 2000 Eurasian Woodcocks are shot in Switzerland every year.

¹ Bregnballe et al. (2004); ² Brochet et al. (2016); ³ Brüngger & Estoppey (2008); ⁴ European Chemicals Agency (2017); ⁵ Evans & Day (2002); ⁶ Ferrand et al. (2013); ⁷ Fisher et al. (2018); ⁸ Franson & Pain (2011); ⁹ Furrer et al. (2016); ¹⁰ Jenni et al. (2015); ¹¹ Jiguet et al. (2016); ¹² Madry et al. (2015); ¹³ Madsen et al. (2015); ¹⁴ Martínez-Abraín et al. (2013); ¹⁵ Mollet (2017a–c); ¹⁶ Pain et al. (2009); ¹⁷ Patthey et al. (2008); ¹⁸ Péron et al. (2011a); ¹⁹ Zbinden & Salvioni (2003c); ²⁰ Zbinden et al. (2018)