**Biology**

Roe deer (*Capreolus capreolus*) are herbivorous and feed mainly on grass, leaves, berries and young shoots. Because roe deer have a relatively small stomach, they need to eat up to 8-12 times a day. The diet differs between regions and the food amount needed depends on the season. The latter is particularly high during the lactation period and in autumn, when a fat reserve is built for the wintertime. In winter, a roe deer needs only 1/3 of the normal food intake.

**Behaviour:**

Roe deer are territorial animals with a territory size of about one square kilometer. Unlike other species of deer, roe deer tend to live solitarily during most of the year. Only in winter, territoriality is given up and animals aggregate.

Roe deer are mainly active in the twilight, they feed in the mornings and in the late evening. If not disturbed, they also feed during daytime.

**Habitus:**

*Capreolus capreolus* has a body-length of 95-135 cm and a shoulder height of 60-85 cm. Weight varies between 15 and 36 kg with the male normally being heavier than the female.

A typical male feature are the rather short and erect antlers. They are shed once a year (October-November) and start regrowing right away after that. The antlers are fully grown and the velvet totally swept off in May.

Fur colour depends on the season: in winter it is greyish-brown, in summer strongly reddish-brown. The patch on the rump is whitish and its form allows distinguishing the sexes: the males’ is bean-shaped, the females’ heart-shaped.

Fawns’ fur coloration is typically brown with white spots.

Roe deer do not have a visible tail.

**Reproduction:**

In April males start scent marking their territory with fighting taking place between males. Females mark off their territory shortly before giving birth in May/June defending it against other females and that way ensuring best habitat conditions for their fawns.

The rutting and mating season is in July and August. Gestation time is 9 1/2 months, but implantation of the fertilized egg only occurs in December after a characteristic embryo dormancy. An average of 2 fawns (sometimes only 1, very rarely 3) are born in May/June.

Fawns are laid separately into high grass and stay hidden. Due to this fact and them being scentless in the first few weeks, they are better protected from predators like foxes, martens etc. Sadly, they often fall victim to grass cutting machines, however.

At the age of 10 months the sexually mature males get chased away, whereas females stay in the family until after their first mating season.
Habitat: Roe deer occur from coastal to alpine regions, from alluvial meadows to mountain forests, from agricultural to parklands. It is a synanthropic species and can be seen grazing on open farmland neighbouring settlement. Generally, roe deer is found in highly structured mixed forests, on their edges, on openings and on meadows. They avoid steep and cold areas.

Status

Roe deer is abundant all over Europe and not threatened at all.

### Austria

Information on the status of roe deer in Austria is scarce. But the population increased in the whole of Europe in the last twenty years [Boisaubert et al. 1999] and Austria is no exception. The hunting bag was 277'000 in 2002/03, which meant an increase of 4% compared to the previous years [website of the Austrian Life Ministry].

### France

In France, the roe deer population has strongly increased in the last twenty years. This evolution has been revealed by hunting statistics and exhaustive population census. In 1997-98, approximately 367'000 roe deer have been declared killed. This is seven times as high as in 1973-74 (53,000). According to these figures, more than a million animals are supposed to live in France [Boisaubert et al. 1999].

### Germany

Due to the difficulty in counting roe deer, there are no numbers for the estimated population size published any more. In older literature, though, one can still find figures indicating 10 animals per hectare [Wikipedia]. From hunting statistics, it becomes clear that the population increased since the seventies. Back then, 600'000 to 700'000 animals were killed while nowadays that figure is over a million [Pfannenstiel 2006].

### Italy

While in 1980 there was a population of about 103'000 living in Italy, the number increased to 270'000 in 1999 [Apollonio 2004].

### Slovenia

Problems related to the imbalance between the population size of ungulates and forest management escalated in Slovenia at the end of the 1960s. The natural regeneration of forests in the Southern, most forested part of Slovenia, came close to a halt. The body weight and the health condition of red deer (Cervus elaphus) and roe deer (Capreolus capreolus) were deteriorating. Foresters and hunters were faced with a problem, which could only be solved with an interdisciplinary approach. The result of joint work was a more holistic wildlife management system that became known as ‘the control method’ [Perko 1979 and Simonic 1982 in Debeljak et al. 2001]. Nowadays, roe deer are widely distributed in Slovenia and the population density is high [Duh et al. 2005].

### Switzerland

The roe deer population of Switzerland can be called stable with the number being around 127'000 for the years of 1994 to 2005. During that same period, an average of 46'000 animals were killed per year through hunting and 15'000 died of other reasons (car accidents, illness, agricultural machines etc.) [Hunting statistics on the website of Wildtier Schweiz].

Distribution

Capreolus capreolus is found in the whole of Europe except for on the Mediterranean islands (Corsica, Sardegna, Sicily, Balearic) and Ireland. Its distribution in Eurasia reaches the Arctic circle in Scandinavia, Spain in the South, China in the East and the Middle East to the North. Models indicated that topography is the most important predictor of ungulate distribution in an alpine environment and that community variables were also important for deer distribution [Pompilio & Meriggi 2001]

### Austria

Roe deer occur throughout Austria.
### France:
Roe deer, essentially a woodland species, recently also colonised the agricultural plain. Where woodland fragments are numerous and widely dispersed, roe deer still retain strong links to woodland structures, probably for cover and social reasons. Where remaining woodland is clumped, with little edge, roe deer adopt an open field habit, remaining at a distance from woodland. The species tends to avoid structures or zones with a high associated level of human activity, though. Moreover, infrastructure affected the average group size in winter in causing it to be smaller [Hewison et al. 2001]. Roe deer are found all over France (except Corsica), the density seems to be especially high in the departments of Haut-Rhin and Dordogne, according to the results found when analysing the numbers of animals killed in car accidents [Bemrah et al. 1997].

### Germany:
*Capreolus capreolus* is found in all of Germany.

### Italy:
Roe deer is present in 67 Italian provinces out of a total of 103 [Pedrotti et al. 2001]. In 36 provinces its population is well distributed and consistent while in 16 the occupied territory is discontinous and in 9 the presence of roe deer is sporadic due to the recent recolonisation [Pedrotti et al. 2001]. The whole area inhabited by *Capreolus capreolus* in Italy extends over 95'700 km².

### Slovenia:
About 60% of Slovenia's surface is covered with forest [Adamic 2004] representing suitable habitat for roe deer. Moreover, the forests are especially valuable because they have a mixed structure [Cop 1977]. Cop stated an estimated 3500 roe deer per 100'000 hectare in the area of Kocevje.

### Switzerland:
Roe deer occur everywhere in Switzerland. But the still increasing fragmentation of habitat makes their species-specific natural dispersal, the genetic exchange and the spatial population balance difficult. A habitat management with corridors for wildlife is therefore suggested [Müri 2003].

### Management
Management issues differ all over Europe.

#### Austria:
In Austria, game damage by roe deer (*Capreolus capreolus*), red deer (*Cervus elaphus*), and chamois (*Rupicapra rupicapra*) is a major problem in forestry, affecting up to one third of the forested area each year. Damage estimates are at least EUR 220 million/year for 10,000 km² of forest damaged [Reimoser 1998]. There are three main goals in minimising forest–ungulate conflicts: (a) minimising conflicts between different interest groups, i.e. stakeholders; (b) protecting biodiversity and related natural ecological interactions; and (c) protecting economic values by seeking sustainable use of plant and wildlife resources [Reimoser 2003]. Forestry and hunting measures alone cannot solve the problem. They must be combined with measures that recognise the aims and targets of all stakeholders, including foresters, hunters, farmers, tourist authorities, with plans co-ordinated over landscapes large enough for sustainable management of the wildlife species of interest. A concept for large-area planning, with integrated management of ungulates and their habitats, has been implemented in some Austrian federal provinces using an instrument known as WESP – Wildlife Ecological Spatial Planning [Reimoser 1996].

#### France:
With 80% of males, 90% of females and between 50 and 95% of fawns surviving every year, France has inevitably a hunting plan. The main target are fawns making up 40% of all killed animals. The average sex ratio in the hunting statistics is 12 females to 10 males. The following hunting methods are allowed in France: battue, hunting with hounds, lying in wait and approaching [website on the Rhone-Alpine Region].

#### Germany:
Since unlimited reproduction in roe deer is considered as a matter of fact without controlling, German authorities define a hunting quota for every hunting season according to current numbers of roe deer. Approximately 1 mio. animals are hunted in Germany per year while the hunting of young ones and of more females than males is preferred. Within both sexes 60% of the total hunting bag fall into the age class of fawns and yearlings and 40% are two years old or older [Pfannenstiel 2006].

#### Italy:
33'700 roe deer were killed by hunting in 1999 [Apollonio 2004]. Roe deer is being hunted in 41 provinces out of possible 67, in 3 of them hunting is only allowed in designated hunting farm areas [Pedrotti et al. 2001].
Slovenia:

In Slovenia, 4000-6000 roe deer are killed on roads each year. This number represents an important factor of the mortality of the species, namely more than 15% of the annual hunting bag, but also presents a high risk for drivers. Therefore, a strategy for mitigation of the problem of roe deer-vehicle collisions was defined. Several mitigation measures such as deer warning reflectors, chemical repellents, averting roadside devices emitting ultrasound and terrestrial vibration etc. were tested in order to reduce roe deer and wildlife mortality on roads [website of the Centre for Ecology and Hydrology in Edinburgh].

Switzerland:

Roe deer is the most hunted species in Switzerland with an average of 46'000 killed per year. This is equivalent to 60% of the yearly shootings of ungulates in Switzerland and comprises approximately one third of the current roe deer's population size [Durand 2003]. Due to the compulsory declaration of shootings of any animal, Switzerland can provide national hunting statistics, as one of the only countries in Europe [visit the link: http://www.wild.unizh.ch/jagdst/ for further information]. At least one quarter of the hunting bag has to be fawns and the sex ratio in killed animals older than one year must be 1:1 or shifted towards a higher number in females [Anonymous 1996].

Conservation

According to IUCN the roe deer is not endangered. On the contrary, in some areas they are increasing dramatically. Due to their preference for young trees they are not very welcome in agricultural lands.

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