



Abstracts

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Invasiveness of politics in wildlife management. Analysis of the technical/scientific expertise of the main management bodies operating in the province of Rieti (Italy)

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The Italian National and Regional laws assign the management of wildlife in unprotected territories to the *Amministrazione Provinciale* (AP) and the *Ambiti Territoriali di Caccia* (ATC). The AP and ATC have to: 1) plan interventions promoting the conservation and increase of rarefied species; 2) act on keeping the *pest species* within sustainable density ranges. In this study we have analysed the technical and scientific expertise in the wildlife and hunting management of the AP and ATC staffs (RI1 and RI2) in the province of Rieti. The AP consists of *Ufficio Ambiente*, *Ufficio Caccia* and *Comitato Tecnico*, and none of the members has wildlife or hunting expertise. The *Comitato Tecnico* counts 20 members chosen politically on the basis of their membership to different categories of stakeholder (farmers, hunters, environmentalists), not identified for experience in wildlife. The ATC consists of *Comitati di Gestione* (i) and *Direttori tecnici* (ii). i) follows the criteria of the AP *Comitato Tecnico*; ii) members by regulations have to prove technical/scientific expertise in wildlife, but this duty is usually not respected. The total absence of wildlife specialists in all management bodies coincides with: a) many species not managed; b) economic resources badly used for occasional wildlife advises; c) damage to crops and ecosystems continuously increasing; d) the social conflict with farmers becoming unsustainable; e) the species of wildlife and hunting interest in an inadequate status.

What is the role of unprotected areas for the conservation of the brown bear? A case study in the Province of Rieti (Italy)

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In central Italy the Brown Bear conservation is in care of the so-called PATOM (*Piano d'azione nazionale per la tutela dell'Orso bruno marsicano*) Action Plan, involving 8 protected areas, 4 provincial Administrations, State Forest Service, Italian Parks and Natural Reserves Federation, Legambiente, WWF and the scientific coordination is entrusted by the University of Rome "La Sapienza". In the province of Rieti 278 km² are protected areas and represent only 10% of the whole bear presence territory (studied area 2,750 km²) and (12% nationally). The protected zones, managed by PATOM, have specific funding and adequate human resources to ensure the continuity of monitoring whilst unprotected areas benefit of sporadic, discontinuous and unplanned interventions, and their supervision is carried out only by the volunteers. The detailed knowledge produced by the above mentioned activities, indicates that bears presence is more frequent in the unprotected areas (especially young males in dispersion from the *core area*). In 2012/2013 period in the Province unprotected areas certain signals of bears, compared to a total absence in parks and reserves, were observed and recently, mortalities were recorded near the border of the Regional Natural Reserve of the Duchessa Mountains and along Highway A24 (always in the unprotected area).

A recent study shows PATOM is perceived by human populations as an instrument for the exclusive use of certain privileged categories, which derives economic benefits from the plan itself. These conditions in their entirety are not contributing to the achievement of the objectives of preservation of the species.

Patterns of skull morphological variation in capybaras (*Hydrochoerus* sp., Caviidae, Rodentia)

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The capybara is the largest living rodent and widely distributed in the tropical regions of South America and Panama. Two species,

Hydrochoerus hydrochaeris and *H. isthmus*, are recognized based on differences in body mass and geographical distribution. In this study we investigate intra- and interspecific morphological variation in the cranium, mandible and teeth along the ontogenetic trajectories of the two species. We used a 3D geometric morphometric approach on 171 *H. hydrochaeris* and 44 *H. isthmus* specimens ranging from newborn to adult. The specimens were assigned to seven different age classes according to sequence of cranial suture closure. Both species can be differentiated in morphospace; they differ in the angle between the braincase and snout – *H. hydrochaeris* displays a straight transition whereas the snout of *H. isthmus* is inclined ventrally. The males in both species are bigger than the females, but no shape differences could be found. Long before reaching sexual maturity, the two youngest age classes (up to 0.5 months, 0.5–10 months) can be morphologically differentiated from the other age classes. Moreover both species follow similar ontogenetic trajectories reflecting their close relatedness. Our data support that *H. hydrochaeris* and *H. isthmus* can be differentiated by size and shape, where the shape differences may indicate differences in diet and habitat. This study illustrates the relevance of an ontogenetic perspective to characterize species and examination of the basis of disparity in adults. Furthermore, the variation recorded serves to evaluate taxonomic and evolutionary aspects in the history of fossil caviomorphs.

A Mongolian gerbil (*Meriones unguiculatus*) fostered by pale gerbils (*Gerbillus perpallidus*)

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A Mongolian gerbil (*Meriones unguiculatus*) was raised by a foster mother (*Gerbillus perpallidus*) because its siblings died. They didn't have any milk in their stomachs. Probably their mother didn't have enough milk. One of three *Meriones* pups was still alive at first day postpartum (born 3.10.2008). Nearly at the same time a female of the pale gerbil had given birth to four pups (born 29.9.2008). This female lived in a group consisting of the mother and her three daughters (three months old). The young Mongolian gerbil was placed into the nest materials of the pale gerbil. Twenty minutes later it was returned to the nest of the gerbil group. It grew up fostered by the adoptive mother and her youngsters. At five months the Mongolian gerbil was separated because of increase of aggression between the siblings. This behaviour also happens sometimes between siblings and mother of the same species, and they have to be separated. So it is not possible to determine whether this happened because of the different species.

At the age of 14 months the fostered Mongolian gerbil (female) mated with another non-fostered Mongolian gerbil and gave birth to ten youngsters in four litters. She raised eight of them successfully. The success rate was the same, comparing the data of successful breeding of all our observed gerbils. The fostered female gerbil did not lose its ability to mate with conspecific. Until her death (2½ years old) she lived in a female group with three of her daughters. The other daughters lived in separate families mating and breeding successfully for following generations.

Effect of sampling method on the ratio of neutrophils to lymphocytes in Felidae

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Presently, the clinical blood analysis becomes a widespread method to assess immune function in wild cats. At least for 18 of 38 wild cat species blood profiles have been published, but the sampling methods varied essentially across species. In birds and few mammal species, the ratio of heterophils or neutrophils to lymphocytes (H:L or N:L) is a parameter of immune activity that does not change within one hour after the blood sampling. These results were confirmed by us for leopard cats (*Prionailurus bengalensis euptilura*). The aim of this study was to estimate the effect of study site (captive/wild), use of anesthesia (yes/no) and handling time (within/more than one hour) on the N:L ratio in Felidae. We analysed literature data on 17 species and our own data on three species: domestic cats (*Felis catus*), leopard cats and bobcats (*Lynx rufus*). The N:L ratio was greater in the species treated in the wild as compared with captivity ($t=2.7$, $p=0.012$), in the species sampled with anesthesia ($t=2.4$, $p=0.028$) and in the cases when handling time exceeded one hour ($t=3.9$, $p=0.001$). Thus, the sampling method had severe effects on the N:L ratio that were highly significant despite interspecific variation. Such effect can possibly exceed the influence of sex, reproductive status, diseases, stress etc. and should be considered in the planning of studies.

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Genetic isolation between coastal and fishery-impacted offshore bottlenose dolphin (*Tursiops* spp.) populations off north-western Australia

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The identification of species and population boundaries are critical in both evolutionary biology and conservation. However, obtaining accurate estimates of important population parameters, such as effective population size, migration rates and degree of admixture can be difficult, particularly in the marine environment. In recent years, new population genetic and computational methods to estimate population parameters and test hypotheses in a quantitative manner have emerged. We evaluated the species affiliations and genetic connectivity of bottlenose dolphin (*Tursiops* spp.) populations off remote north-western Australia, with a focus on pelagic 'offshore' dolphins subject to bycatch in a trawl fishery. We analysed 71 dolphin samples from beyond the 50 m depth contour and up to 170 km offshore, including by-caught and free-ranging individuals associating with trawl vessels; and 273 dolphins sampled at 12 coastal sites inshore of the 20 m depth contour and within 10 km of the coast. Results from 19 nuclear microsatellite markers showed significant population structure between the trawler-associated and coastal sites, but also among

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