Electronic Supplementary Materials

Conserving the functional and phylogenetic trees of life of European tetrapods

By W. Thuiller et al.

Species list

Amphibians	Birds	Mammals	Squamates
Alytes cisternasii	*Accipiter brevipes*	*Acomys minous*	*Ablepharus budaki*
Alytes dickhilleni	*Accipiter gentilis*	*Acomys nesiotes*	*Ablepharus chernovi*
Alytes muletensis	*Accipiter nisus*	*Alces alces*	*Ablepharus kitaibelii*
Alytes obstetricans	*Acrocephalus agricola*	*Allactaga elater*	*Acanthodactylus boskianus*
Bombina bombina	*Acrocephalus arundinaceus*	*Allactaga euphratica*	*Acanthodactylus erythrurus*
Bombina pachypus	*Acrocephalus dumetorum*	*Allactaga major*	*Acanthodactylus grandis*
Bombina variegata	*Acrocephalus melanopogon*	*Allactaga sibirica*	*Acanthodactylus schreiberi*
Bufo balearicus	*Acrocephalus paludicola*	*Allactaga williamsi*	*Algyroides fitzingeri*
Bufo boulengeri	*Acrocephalus palustris*	*Allocricetulus eversmanni*	*Algyroides marchi*
Bufo bufo	*Acrocephalus schoenobaenus*	*Apodemus agrarius*	*Algyroides moreoticus*
Bufo calamita	*Acrocephalus scirpaceus*	*Apodemus alpicola*	*Algyroides nigropunctatus*
Bufo siculus	*Actitis hypoleucos*	*Apodemus flavicollis*	*Alsophylax pipiens*
Bufo variabilis	*Aegithalos caudatus*	*Apodemus hyrcanicus*	*Anatololacerta anatolica*
Bufo verrucosissimus	*Aegolius funereus*	*Apodemus mystacinus*	*Anatololacerta danfordi*
Bufo viridis	*Aegypius monachus*	*Apodemus ponticus*	*Anatololacerta oertzeni*
Calotriton arnoldi	*Alauda arvensis*	*Apodemus sylvaticus*	*Anguis cephallonica*
Calotriton asper	*Alcedo atthis*	*Apodemus uralensis*	*Anguis fragilis*
Chioglossa lusitanica	*Alectoris barbara*	*Apodemus witherbyi*	*Apathya cappadocica*
Discoglossus galganoi	*Alectoris chukar*	*Arvicola amphibius*	*Archaeolacerta bedriagae*
Discoglossus jeanneae	*Alectoris graeca*	*Arvicola sapidus*	*Asaccus elisae*
Discoglossus montalentii	*Alectoris rufa*	*Arvicola scherman*	*Blanus cinereus*
Discoglossus pictus	*Anas acuta*	*Atelerix algirus*	*Blanus strauchi*
Discoglossus sardus	*Anas clypeata*	*Barbastella barbastellus*	*Chalcides bedriagai*
Euproctus montanus	*Anas crecca*	*Barbastella leucomelas*	*Chalcides bistriatus*
Euproctus platycephalus	*Anas platyrhynchos*	*Bison bonasus*	*Chalcides chalcides*
Hydromantes ambrosii	*Anas querquedula*	*Calomyscus urartensis*	*Chalcides ocellatus*
Hydromantes flavus	*Anser anser*	*Canis aureus*	*Chalcides sexlineatus*
Hydromantes genei	*Anser brachyrhynchus*	*Canis lupus*	*Chalcides simonyi*
Hydromantes imperialis	*Anser erythropus*	*Capra caucasica*	*Chalcides striatus*
Hydromantes italicus	*Anser fabalis*	*Capra ibex*	*Chalcides viridanus*
Hydromantes sarrabusensis	*Anthropoides virgo*	*Capra pyrenaica*	*Chamaeleo africanus*
Hydromantes strinatii	*Anthus berthelotii*	*Capreolus capreolus*	*Chamaeleo chamaeleon*
Hydromantes supramontis	*Anthus campestris*	*Capreolus pygargus*	*Coronella austriaca*
Hyla arborea	*Anthus cervinus*	*Castor fiber*	*Coronella girondica*
Hyla intermedia	*Anthus petrosus*	*Cervus elaphus*	*Cyrtopodion caspium*
Hyla meridionalis	*Anthus pratensis*	*Chionomys gud*	*Cyrtopodion heterocercum*
Hyla sarda	*Anthus spinoletta*	*Chionomys nivalis*	*Cyrtopodion kotschyi*
Hyla savignyi	*Anthus trivialis*	*Chionomys roberti*	*Cyrtopodion scabrum*
Lissotriton boscai	*Apus apus*	*Cricetulus migratorius*	*Dalmatolacerta oxycephala*
Lissotriton helveticus	*Apus caffer*	*Cricetus cricetus*	*Darevskia armeniaca*
Lissotriton italicus	*Apus melba*	*Crocidura canariensis*	*Darevskia bendimahiensis*
Lissotriton montandoni	*Apus pallidus*	*Crocidura leucodon*	*Darevskia clarkorum*
Lissotriton vulgaris	*Aquila chrysaetos*	*Crocidura russula*	*Darevskia dahli*
Lyciasalamandra antalyana	*Aquila clanga*	*Crocidura sicula*	*Darevskia derjugini*
Lyciasalamandra atifi	*Aquila heliaca*	*Crocidura suaveolens*	*Darevskia mixta*
Lyciasalamandra billae	*Aquila pomarina*	*Dama dama*	*Darevskia nairensis*
Lyciasalamandra fazilae	*Ardea cinerea*	*Desmana moschata*	*Darevskia parvula*
Lyciasalamandra flavimembris	*Ardea purpurea*	*Dicrostonyx torquatus*	*Darevskia portschinskii*
Lyciasalamandra helverseni	*Ardeola ralloides*	*Dinaromys bogdanovi*	*Darevskia praticola*
Lyciasalamandra luschani	*Arenaria interpres*	*Diplomesodon pulchellum*	*Darevskia raddei*
Mertensiella caucasica	*Asio flammeus*	*Dipus sagitta*	*Darevskia rostombekovi*
Mesotriton alpestris	*Asio otus*	*Dryomys laniger*	*Darevskia rudis*
Neurergus crocatus	*Athene noctua*	*Dryomys nitedula*	*Darevskia sapphirina*
Neurergus strauchii	*Aythya ferina*	*Eliomys melanurus*	*Darevskia unisexualis*
Ommatotriton ophryticus	*Aythya fuligula*	*Eliomys quercinus*	*Darevskia uzzelli*
Ommatotriton vittatus	*Aythya marila*	*Ellobius lutescens*	*Darevskia valentini*
Pelobates cultripes	*Aythya nyroca*	*Ellobius talpinus*	*Dinarolacerta montenegrina*
Pelobates fuscus	*Bombycilla garrulus*	*Eptesicus bottae*	*Dinarolacerta mosorensis*
Pelobates syriacus	*Bonasa bonasia*	*Eptesicus serotinus*	*Dolichophis caspius*
Pelodytes caucasicus	*Botaurus stellaris*	*Erinaceus concolor*	*Dolichophis cypriensis*
Pelodytes ibericus	*Branta leucopsis*	*Erinaceus europaeus*	*Dolichophis jugularis*
Pelodytes punctatus	*Bubo bubo*	*Erinaceus roumanicus*	*Dolichophis schmidti*
Pleurodeles waltl	*Bubulcus ibis*	*Felis chaus*	*Eirenis decemlineatus*
Proteus anguinus	*Bucanetes githagineus*	*Felis margarita*	*Eirenis levantinus*
Rana arvalis	*Bucephala clangula*	*Felis silvestris*	*Eirenis lineomaculatus*
Rana bergeri	*Burhinus oedicnemus*	*Galemys pyrenaicus*	*Eirenis modestus*
Rana dalmatina	*Buteo buteo*	*Gazella subgutturosa*	*Eirenis punctatolineatus*
Rana esculenta	*Buteo lagopus*	*Genetta genetta*	*Eirenis rothii*
Rana graeca	*Buteo rufinus*	*Glis glis*	*Elaphe dione*
Rana iberica	*Calandrella brachydactyla*	*Gulo gulo*	*Elaphe quatuorlineata*

Rana italica
Rana kurtmuelleri
Rana latastei
Rana lessonae
Rana perezi
Rana pyrenaica
Rana ridibunda
Rana temporaria
Salamandra atra
Salamandra corsica
Salamandra infraimmaculata
Salamandra lanzai
Salamandra salamandra
Salamandrella keyserlingii
Salamandrina perspicillata
Salamandrina terdigitata
Triturus carnifex
Triturus cristatus
Triturus dobrogicus
Triturus karelinii
Triturus marmoratus
Triturus pygmaeus

Calandrella cheleensis
Calandrella rufescens
Calcarius lapponicus
Calidris alpina
Calidris maritima
Calidris minuta
Calidris temminckii
Caprimulgus europaeus
Caprimulgus ruficollis
Carduelis cannabina
Carduelis carduelis
Carduelis chloris
Carduelis flammea
Carduelis flavirostris
Carduelis hornemanni
Carduelis spinus
Carpodacus erythrinus
Cercotrichas galactotes
Certhia brachydactyla
Certhia familiaris
Cettia cetti
Charadrius alexandrinus
Charadrius asiaticus
Charadrius dubius
Charadrius hiaticula
Charadrius morinellus
Chersophilus duponti
Chlidonias hybridus
Chlidonias leucopterus
Chlidonias niger
Ciconia ciconia
Ciconia nigra
Cinclus cinclus
Circaetus gallicus
Circus aeruginosus
Circus cyaneus
Circus macrourus
Circus pygargus
Cisticola juncidis
Clamator glandarius
Clangula hyemalis
Coccothraustes coccothraustes
Columba livia
Columba oenas
Columba palumbus
Coracias garrulus
Corvus corax
Corvus corone
Corvus frugilegus
Corvus monedula
Coturnix coturnix
Crex crex
Cuculus canorus
Cyanopica cyana (cyanus)
Cygnus cygnus
Cygnus olor
Delichon urbica
Dendrocopos major
Dendrocopos medius
Dendrocopos minor
Dryocopus martius
Egretta garzetta
Elanus caeruleus
Emberiza aureola
Emberiza caesia
Emberiza cia
Emberiza cirlus
Emberiza citrinella
Emberiza hortulana
Emberiza melanocephala
Emberiza pusilla
Emberiza rustica
Emberiza schoeniclus
Eremophila alpestris
Erithacus rubecula
Falco biarmicus

Hemiechinus auritus
Herpestes ichneumon
Hyaena hyaena
Hystrix cristata
Hystrix indica
Lagurus lagurus
Lemmus lemmus
Lepus capensis
Lepus castroviejoi
Lepus corsicanus
Lepus europaeus
Lepus granatensis
Lepus timidus
Lepus tolai
Lutra lutra
Lynx lynx
Lynx pardinus
Marmota baibacina
Marmota marmota
Martes foina
Martes martes
Martes zibellina
Meles leucurus
Meles meles
Meriones crassus
Meriones dahli
Meriones libycus
Meriones meridianus
Meriones persicus
Meriones tamariscinus
Meriones vinogradovi
Mesocricetus auratus
Mesocricetus brandti
Mesocricetus newtoni
Mesocricetus raddei
Micromys minutus
Microtus agrestis
Microtus arvalis
Microtus brachycercus
Microtus cabrerae
Microtus daghestanicus
Microtus duodecimcostatus
Microtus gerbei
Microtus gregalis
Microtus guentheri
Microtus levis
Microtus lusitanicus
Microtus majori
Microtus middendorffii
Microtus oeconomus
Microtus savii
Microtus socialis
Microtus subterraneus
Microtus tatricus
Mus macedonicus
Mus musculus
Mus spicilegus
Mus spretus
Muscardinus avellanarius
Mustela erminea
Mustela eversmanii
Mustela lutreola
Mustela nivalis
Mustela putorius
Mustela sibirica
Myodes glareolus
Myodes rufocanus
Myodes rutilus
Myomimus roachi
Myopus schisticolor
Myotis bechsteinii
Myotis blythii
Myotis brandtii
Myotis capaccinii
Myotis dasycneme
Myotis daubentonii

Elaphe sauromates
Eremias arguta
Eremias persica
Eremias pleskei
Eremias strauchi
Eryx jaculus
Euleptes europaea
Eumeces schneideri
Gallotia atlantica
Gallotia bravoana
Gallotia caesaris
Gallotia galloti
Gallotia intermedia
Gallotia simonyi
Gallotia stehlini
Hellenolacerta graeca
Hemidactylus turcicus
Hemorrhois algirus
Hemorrhois hippocrepis
Hemorrhois nummifer
Hemorrhois ravergieri
Hierophis gemonensis
Hierophis viridiflavus
Iberolacerta aranica
Iberolacerta aurelioi
Iberolacerta bonnali
Iberolacerta cyreni
Iberolacerta galani
Iberolacerta horvathi
Iberolacerta martinezricai
Iberolacerta monticola
Iranolacerta brandtii
Lacerta agilis
Lacerta bilineata
Lacerta media
Lacerta schreiberi
Lacerta strigata
Lacerta trilineata
Lacerta viridis
Laudakia caucasia
Laudakia stellio
Leptotyphlops macrorhynchus
Macroprotodon brevis
Macroprotodon cucullatus
Macroprotodon mauritanicus
Macrovipera lebetina
Macrovipera schweizeri
Malpolon monspessulanus
Mesalina brevirostris
Montivipera raddei
Montivipera wagneri
Montivipera xanthina
Natrix maura
Natrix natrix
Natrix tessellata
Ophiomorus punctatissimus
Ophisops elegans
Parvilacerta parva
Phoenicolacerta laevis
Phoenicolacerta troodica
Phrynocephalus helioscopus
Phrynocephalus mystaceus
Phrynocephalus persicus
Platyceps collaris
Platyceps najadum
Platyceps ventromaculatus
Podarcis atrata
Podarcis bocagei
Podarcis carbonelli
Podarcis erhardii
Podarcis filfolensis
Podarcis gaigeae
Podarcis hispanica
Podarcis lilfordi
Podarcis melisellensis
Podarcis milensis

Falco cherrug
Falco columbarius
Falco eleonorae
Falco naumanni
Falco peregrinus
Falco rusticolus
Falco subbuteo
Falco tinnunculus
Falco vespertinus
Ficedula albicollis
Ficedula hypoleuca
Ficedula parva
Ficedula semitorquata
Fringilla coelebs
Fringilla montifringilla
Fulica atra
Fulica cristata
Galerida cristata
Galerida theklae
Gallinago gallinago
Gallinago media
Gallinula chloropus
Garrulus glandarius
Gavia arctica
Gavia immer
Gavia stellata
Gelochelidon nilotica
Glareola nordmanni
Glareola pratincola
Glaucidium passerinum
Grus grus
Gypaetus barbatus
Gyps fulvus
Haematopus ostralegus
Haliaeetus albicilla
Hieraaetus fasciatus
Hieraaetus pennatus
Himantopus himantopus
Hippolais icterina
Hippolais olivetorum
Hippolais pallida
Hippolais polyglotta
Hirundo daurica
Hirundo rustica
Ixobrychus minutus
Jynx torquilla
Lagopus lagopus
Lagopus mutus
Lanius collurio
Lanius excubitor
Lanius minor
Lanius nubicus
Lanius senator
Larus argentatus
Larus audouinii
Larus canus
Larus fuscus
Larus hyperboreus
Larus ichthyaetus
Larus marinus
Larus melanocephalus
Larus minutus
Larus ridibundus
Limicola falcinellus
Limosa lapponica
Limosa limosa
Locustella fluviatilis
Locustella luscinioides
Locustella naevia
Loxia curvirostra
Loxia pytyopsittacus
Loxia scotica
Lullula arborea
Luscinia luscinia
Luscinia megarhynchos
Luscinia svecica
Myotis emarginatus
Myotis myotis
Myotis mystacinus
Myotis nattereri
Myotis nipalensis
Myotis punicus
Neomys anomalus
Neomys fodiens
Neomys teres
Nyctalus azoreum
Nyctalus lasiopterus
Nyctalus leisleri
Nyctalus noctula
Ochotona hyperborea
Ochotona pusilla
Oryctolagus cuniculus
Ovis aries
Panthera pardus
Pipistrellus kuhlii
Pipistrellus maderensis
Pipistrellus nathusii
Pipistrellus pipistrellus
Pipistrellus pygmaeus
Plecotus auritus
Plecotus austriacus
Plecotus kolombatovici
Plecotus teneriffae
Prometheomys schaposchnikowi
Pteromys volans
Pygeretmus platyurus
Pygeretmus pumilio
Rangifer tarandus
Rhinolophus blasii
Rhinolophus euryale
Rhinolophus ferrumequinum
Rhinolophus hipposideros
Rhinolophus mehelyi
Rhombomys opimus
Rousettus aegyptiacus
Rupicapra pyrenaica
Rupicapra rupicapra
Saiga tatarica
Sciurus anomalus
Sciurus vulgaris
Sicista armenica
Sicista betulina
Sicista caucasica
Sicista kazbegica
Sicista kluchorica
Sicista severtzovi
Sicista strandi
Sicista subtilis
Sorex alpinus
Sorex antinorii
Sorex araneus
Sorex caecutiens
Sorex coronatus
Sorex granarius
Sorex isodon
Sorex minutissimus
Sorex minutus
Sorex raddei
Sorex samniticus
Sorex satunini
Sorex tundrensis
Sorex volnuchini
Spalax arenarius
Spalax ehrenbergi
Spalax giganteus
Spalax graecus
Spalax leucodon
Spalax nehringi
Spalax uralensis
Spalax zemni
Spermophilus citellus
Spermophilus fulvus
Podarcis muralis
Podarcis peloponnesiaca
Podarcis pityusensis
Podarcis raffonei
Podarcis sicula
Podarcis taurica
Podarcis tiliguerta
Podarcis wagleriana
Psammodromus algirus
Psammodromus hispanicus
Pseudocerastes persicus
Pseudopus apodus
Rhinechis scalaris
Spalerosophis diadema
Stenodactylus grandiceps
Tarentola angustimentalis
Tarentola bischoffi
Tarentola boettgeri
Tarentola delalandii
Tarentola gomerensis
Tarentola mauritanica
Teira dugesii
Telescopus fallax
Timon lepidus
Timon princeps
Trachylepis aurata
Trachylepis septemtaeniata
Trachylepis vittata
Trapelus agilis
Typhlops vermicularis
Varanus griseus
Vipera ammodytes
Vipera aspis
Vipera berus
Vipera dinniki
Vipera eriwanensis
Vipera kaznakovi
Vipera latastei
Vipera lotievi
Vipera nikolskii
Vipera renardi
Vipera seoanei
Vipera transcaucasiana
Vipera ursinii
Zamenis hohenackeri
Zamenis lineatus
Zamenis longissimus
Zamenis persica
Zamenis situla
Zootoca vivipara

Lymnocryptes minimus
Marmaronetta angustirostris
Melanitta fusca
Melanitta nigra
Melanocorypha calandra
Mergus merganser
Mergus serrator
Merops apiaster
Miliaria calandra
Milvus migrans
Milvus milvus
Monticola saxatilis
Monticola solitarius
Motacilla alba
Motacilla cinerea
Motacilla citreola
Motacilla flava
Muscicapa striata
Neophron percnopterus
Netta rufina
Nucifraga caryocatactes
Numenius arquata
Numenius phaeopus
Nyctea scandiaca
Nycticorax nycticorax
Oenanthe hispanica
Oenanthe isabellina
Oenanthe oenanthe
Oenanthe pleschanka
Oriolus oriolus
Otis tarda
Otus scops
Oxyura leucocephala
Pandion haliaetus
Panurus biarmicus
Parus ater
Parus caeruleus
Parus cinctus
Parus cristatus
Parus cyanus
Parus lugubris
Parus major
Parus montanus
Parus palustris
Passer domesticus
Passer hispaniolensis
Passer montanus
Perdix perdix
Perisoreus infaustus
Pernis apivorus
Petronia petronia
Phalacrocorax carbo
Phalaropus lobatus
Phasianus colchicus
Philomachus pugnax
Phoenicurus ochruros
Phoenicurus phoenicurus
Phylloscopus bonelli
Phylloscopus borealis
Phylloscopus sibilatrix
Phylloscopus trochiloides
Phylloscopus trochilus
Pica pica
Picoides tridactylus
Picus canus
Picus viridis
Pinicola enucleator
Platalea leucorodia
Plectrophenax nivalis
Plegadis falcinellus
Pluvialis apricaria
Pluvialis squatarola
Podiceps auritus
Podiceps cristatus
Podiceps grisegena
Podiceps nigricollis
Spermophilus major
Spermophilus musicus
Spermophilus pygmaeus
Spermophilus suslicus
Spermophilus xanthoprymnus
Suncus etruscus
Sus scrofa
Tadarida teniotis
Talpa caeca
Talpa caucasica
Talpa davidiana
Talpa europaea
Talpa levantis
Talpa occidentalis
Talpa romana
Talpa stankovici
Tamias sibiricus
Tatera indica
Ursus arctos
Ursus maritimus
Vespertilio murinus
Vormela peregusna
Vulpes corsac
Vulpes vulpes

Porphyrio porphyrio
Porzana parva
Porzana porzana
Porzana pusilla
Prunella collaris
Prunella modularis
Pterocles alchata
Pterocles orientalis
Ptyonoprogne rupestris
Pyrrhocorax graculus
Pyrrhocorax pyrrhocorax
Pyrrhula pyrrhula
Rallus aquaticus
Recurvirostra avosetta
Regulus ignicapillus
Regulus regulus
Remiz pendulinus
Riparia riparia
Rissa tridactyla
Saxicola rubetra
Saxicola torquata
Scolopax rusticola
Serinus citrinella
Serinus serinus
Sitta europaea
Sitta krueperi
Sitta neumayer
Somateria mollissima
Stercorarius longicaudus
Stercorarius parasiticus
Stercorarius pomarinus
Stercorarius skua
Sterna albifrons
Sterna caspia
Sterna dougallii
Sterna hirundo
Sterna paradisaea
Sterna sandvicensis
Streptopelia decaocto
Streptopelia turtur
Strix aluco
Strix nebulosa
Strix uralensis
Sturnus roseus
Sturnus unicolor
Sturnus vulgaris
Surnia ulula
Sylvia atricapilla
Sylvia borin
Sylvia cantillans
Sylvia communis
Sylvia conspicillata
Sylvia curruca
Sylvia hortensis
Sylvia melanocephala
Sylvia rueppelli
Sylvia sarda
Sylvia undata
Tachybaptus ruficollis
Tadorna ferruginea
Tadorna tadorna
Tetrao tetrix
Tetrao urogallus
Tetrax tetrax
Tichodroma muraria
Tringa erythropus
Tringa glareola
Tringa nebularia
Tringa ochropus
Tringa stagnatilis
Tringa totanus
Troglodytes troglodytes
Turdus iliacus
Turdus merula
Turdus philomelos
Turdus pilaris

	Turdus torquatus *Turdus viscivorus* *Tyto alba* *Upupa epops* *Vanellus gregarius* *Vanellus vanellus* *Xenus cinereus*		

Functional trait database.

To make sure all analyses were comparable throughout the four groups, we selected similar or equivalent traits for the four groups. For instance, body mass was used for both birds and mammals while body length was used for amphibians and squamates.
We summarised below the different classes used for each group and for each traits and their meaning. We also added the list of publications where the data where gathered. For birds, most data were extracted from Pearman *et al*. [1].

Diet traits.

- **Adult:** Mushrooms, mosses/lichens, seeds/nuts/grains, fruits/berries, vegetarian, invertebrates, fishes, small mammals, large mammals, herptiles, bird eggs, small birds, large birds, bones, carrion, coprofagus.
- **Larvae-juveniles (amphibians):** vegetarian, invertebrates, carrion, detritus

Adult feeding behaviours

- **Adult:** Opportunistic, hunting, browser, grazer. For birds: pursuit/air/aquatic, sally, foliage gleaning, pounce, grazing, pick/peck/stab, dig, overturning objects, probe and filter.
- **Larvae-juveniles (amphibians):** Opportunistic, hunting.

Reproduction site

- ground, artificial/building, elevated (tree/shrubs), underground water, cave/fissures/borrows, lodge, temporary water, brooks/springs/small rivers, rivers, puddles/ponds/pools/small lakes, lakes, brackish waters, sea.

Activity

- Nortural, crepuscular, diurnal and arithmic.

Nesting location

- viviparous, ovoviviparous, elevated, tree hole/fissure in the bark, ground, rocks, building/artificial, underground water, cave/fissures/borrows, lodge, temporary water, brooks/springs/small rivers, puddles/ponds/pools/small lakes, brackish waters, parthenogenetic.

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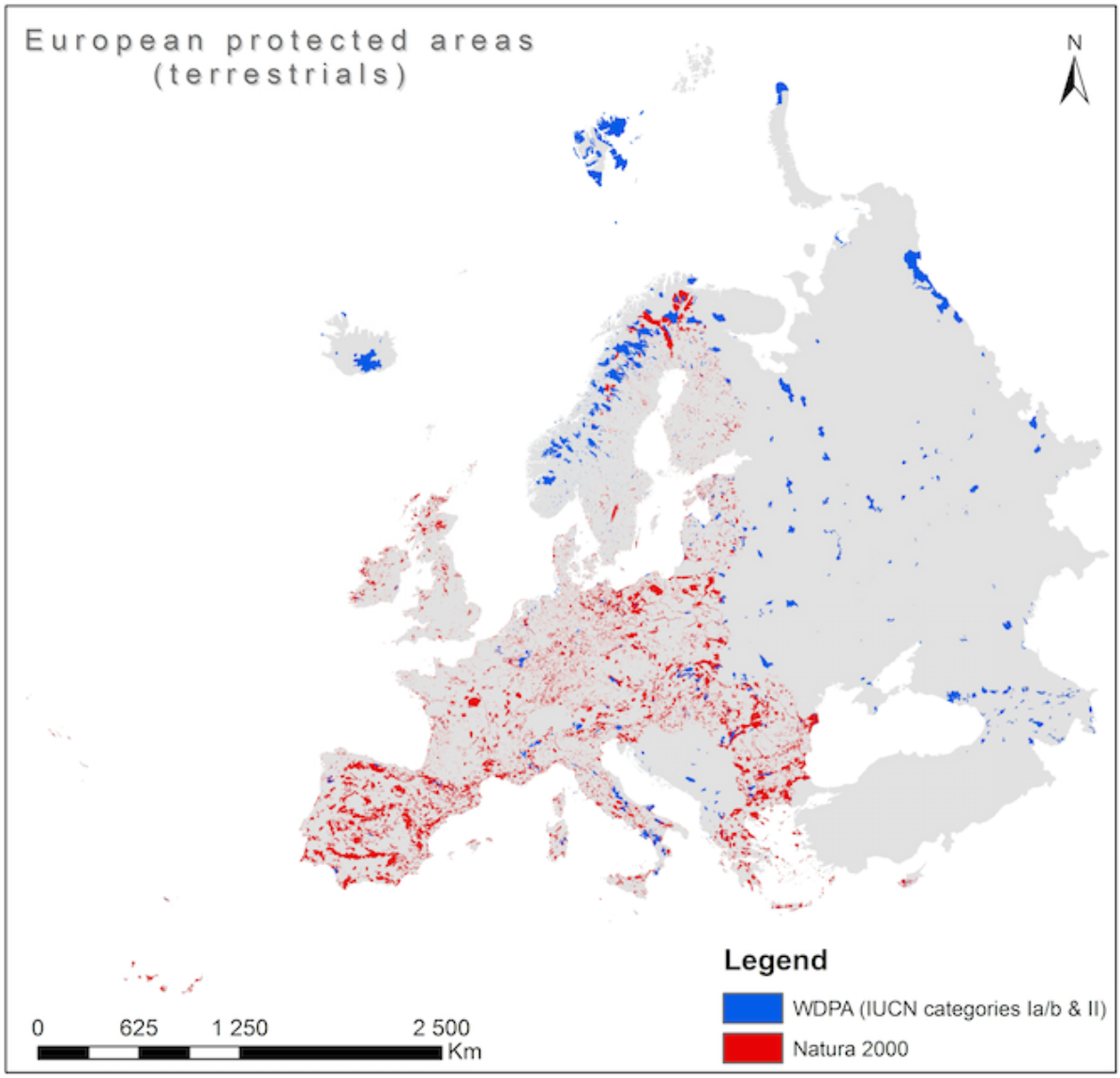

Figure S1. Distribution of protected areas in Europe. Only the protected areas considered in the study are mapped. They are represented in blue by PAs belonging to IUCN category I and II from the World Database on Protected Area (WDPA, http://protectedplanet.net/) and in red by the complete Natura 2000 areas (http://www.eea.europa.eu/) for the EU28 belonging to the entire European sub-continent.

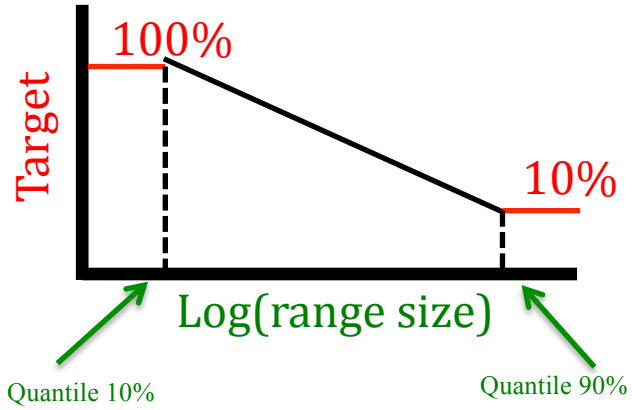

Figure S2 Target definition for the four groups. For each group, we extracted the species for which species range size belonged to the top 10 and 90% quantiles. For those species, the target was fixed to 100% and to 10%. In order words, a target of 100% was set for the 10% rarest species of each group, and the target of 10% was set for the 10% most common species. For the remaining species, a regression was fitted between the coordinates (10,100) and (90,10) to define their respective targets. Species target achievement was then measured at the ratio between the percentage of range actually covered by the PA system and the target.

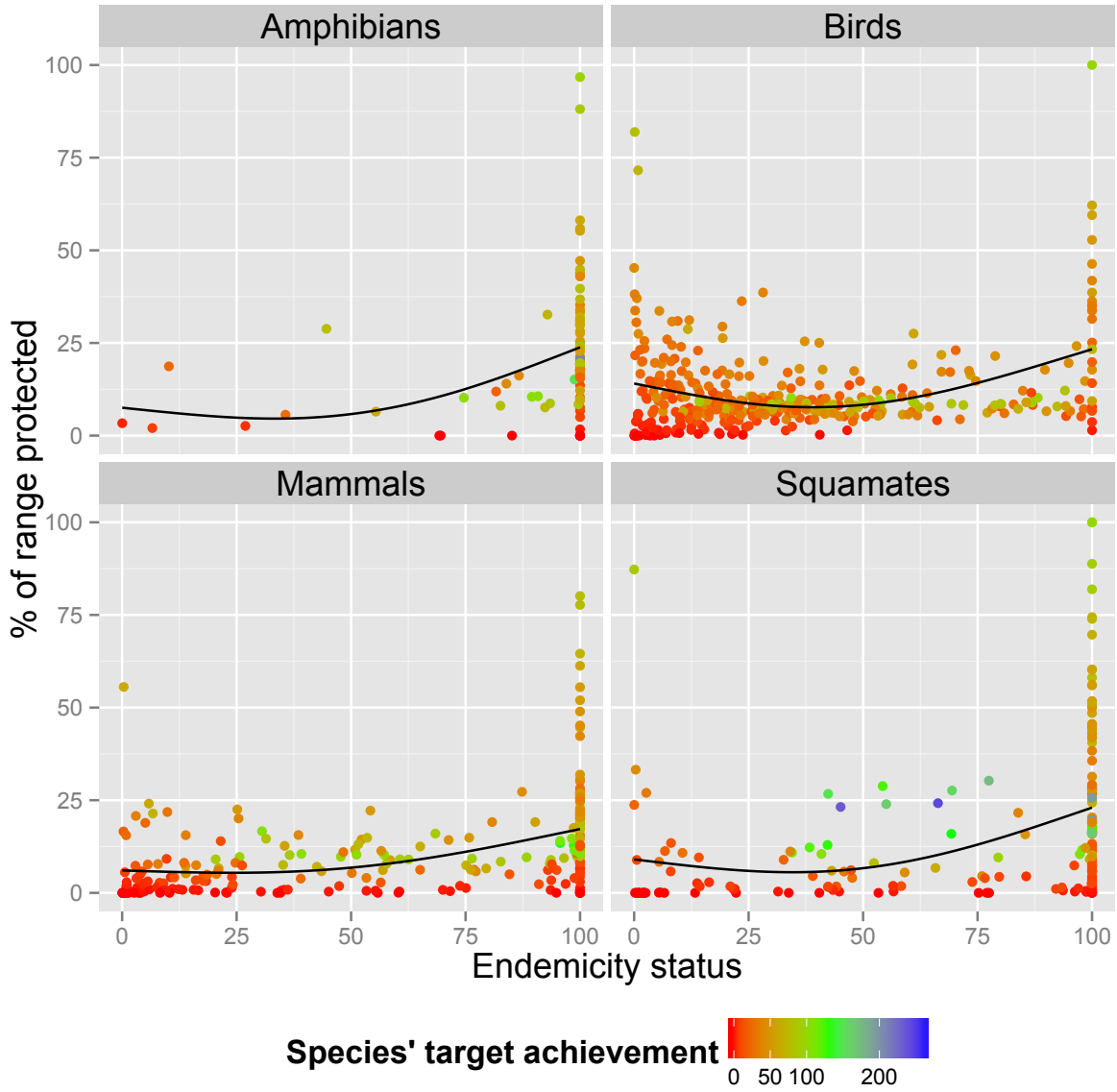

Figure S3 Percentage of range of protected in Europe in function of the endemicity status (% of global range encapsulated in the European region under study). Species' target achievement is also indicated using a colour gradient from red to blue (low to high). When endemicity equals to 100%, it means the species is a strict endemic of the European region under study.

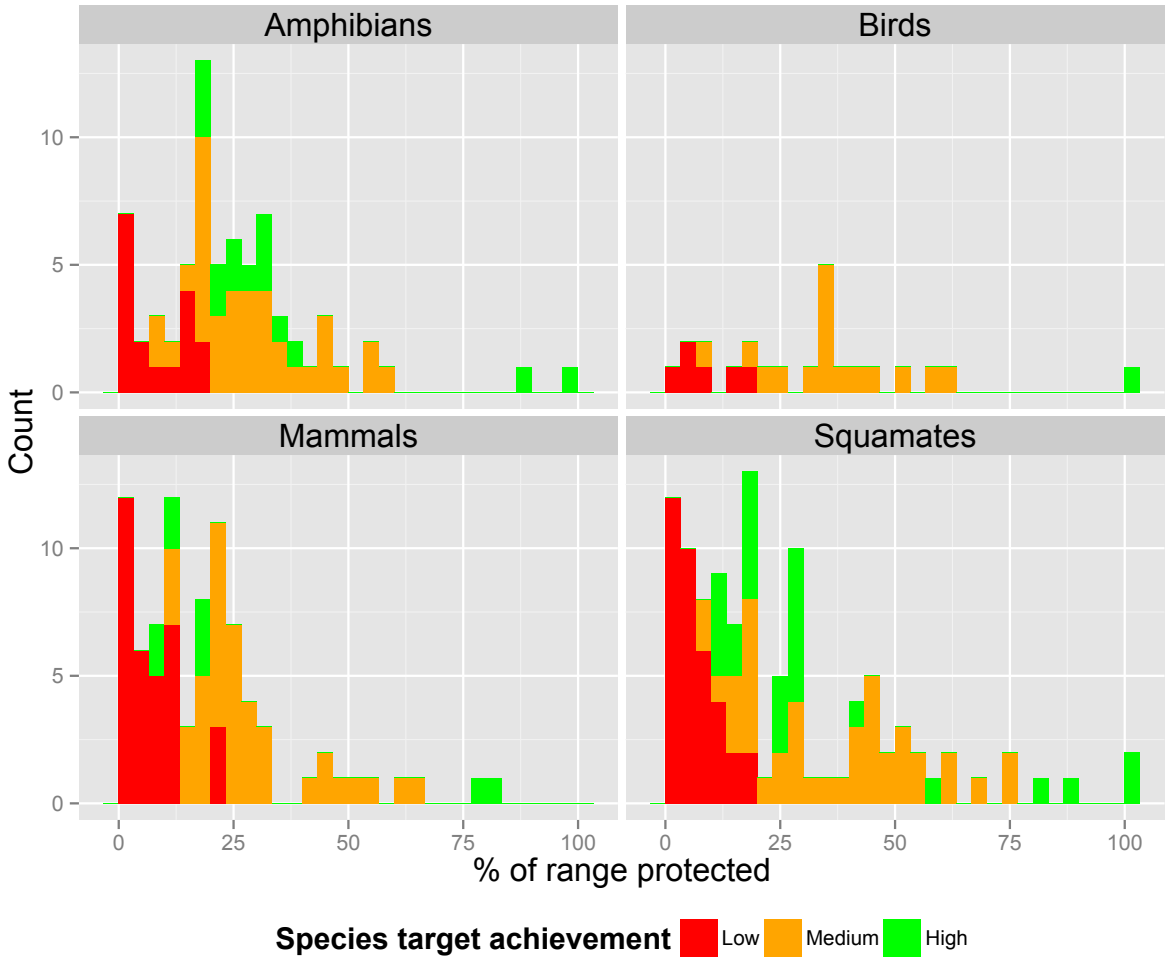

Figure S4. **Percentage of range protected for endemic species in Europe.** The Y-axis represents a number of species (over a total of 280 species) and X-axis the percentage of range currently protected in Europe. The filled bars represent the species' target achievements in three classes, namely low, medium and high, when species' target achievement was lower than 25%, between 25 and 75% and higher than 75%, respectively.

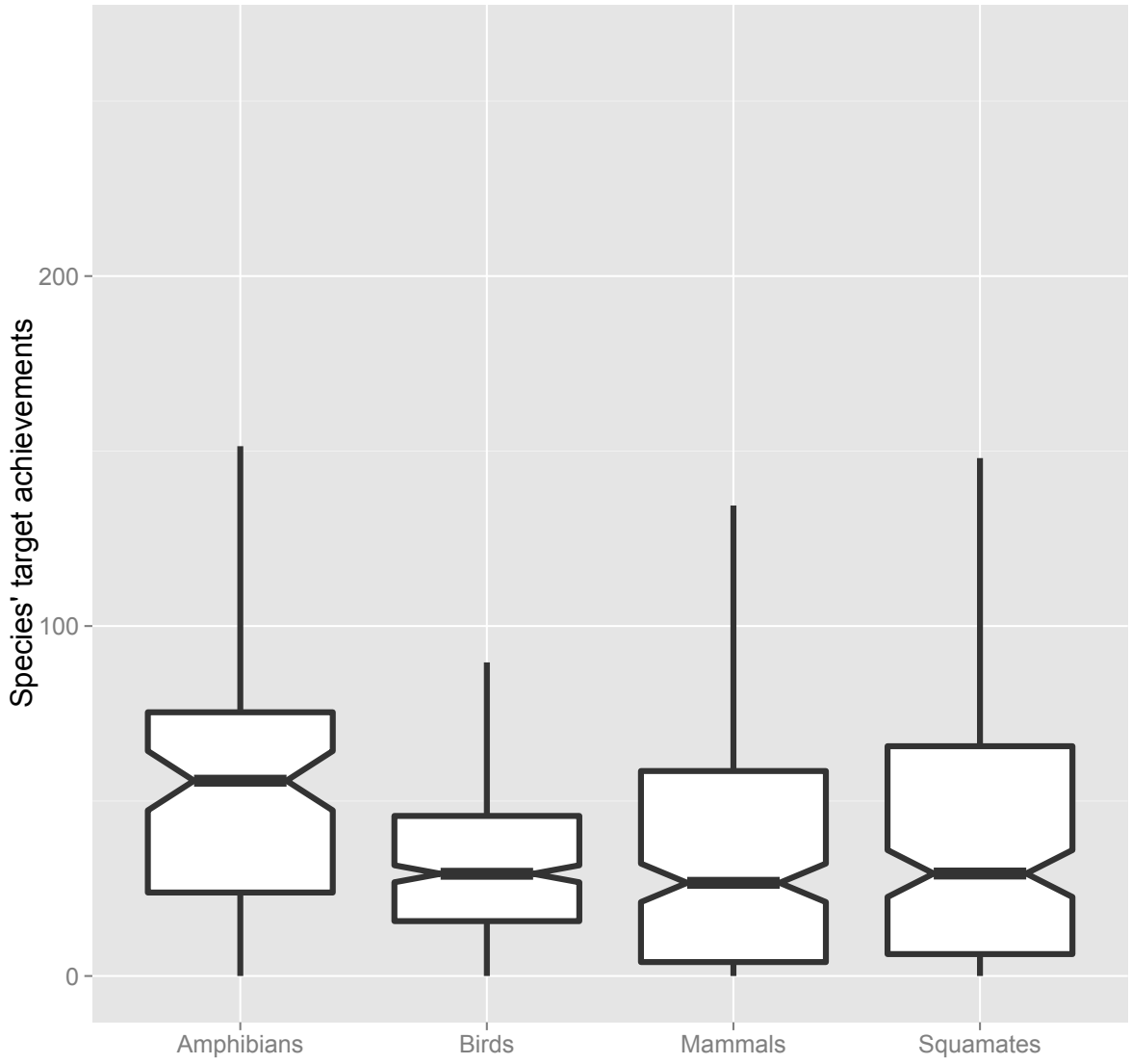

Figure S5. **Species' target achievement across the four groups**. The outliers are not displayed. The upper and lower "hinges" correspond to the first and third quartiles (the 25th and 75th percentiles). The notches give a roughly 95 interval for comparing medians. Amphibians have significantly higher species' target achievements that the other three groups.

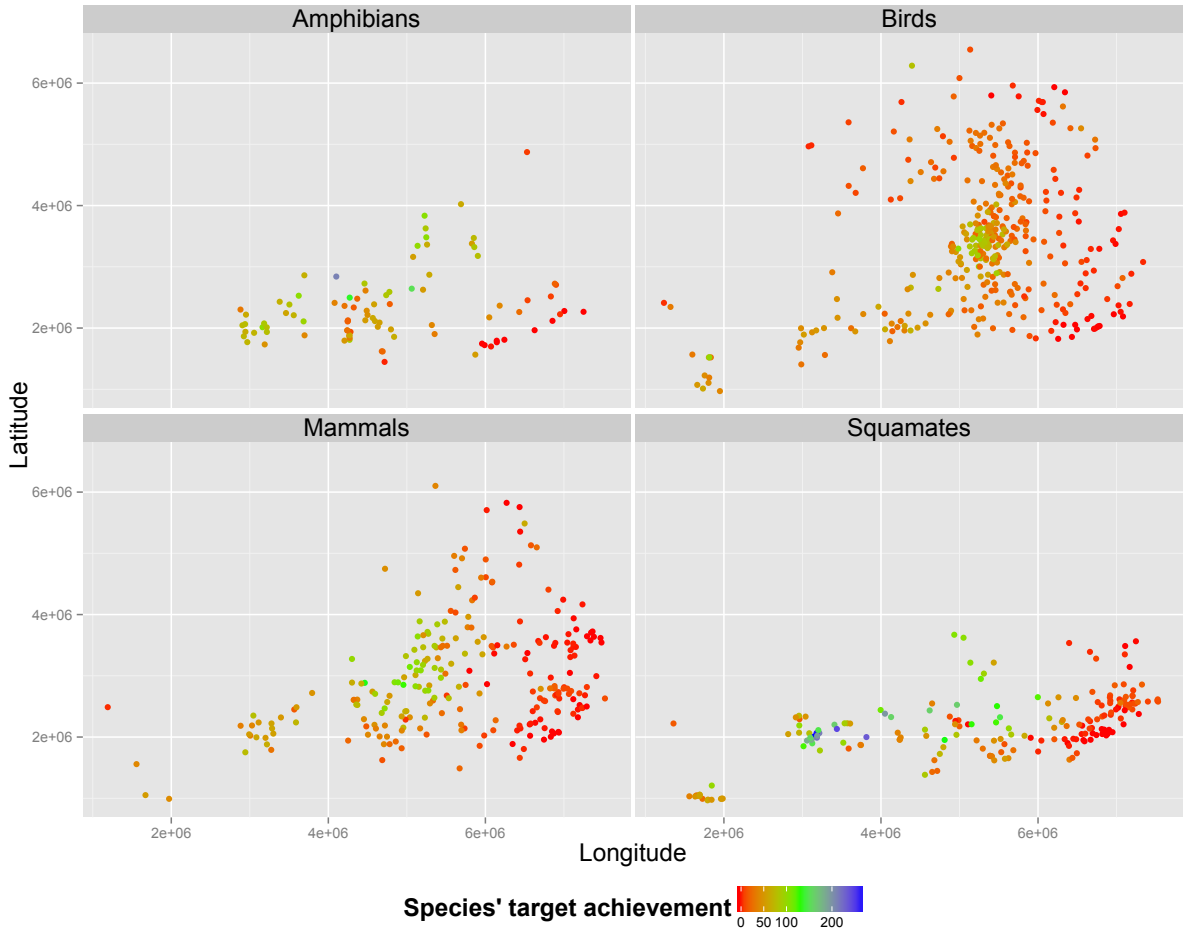

Figure S6 Mean latitude and longitude of all species in function of species' target achievement.

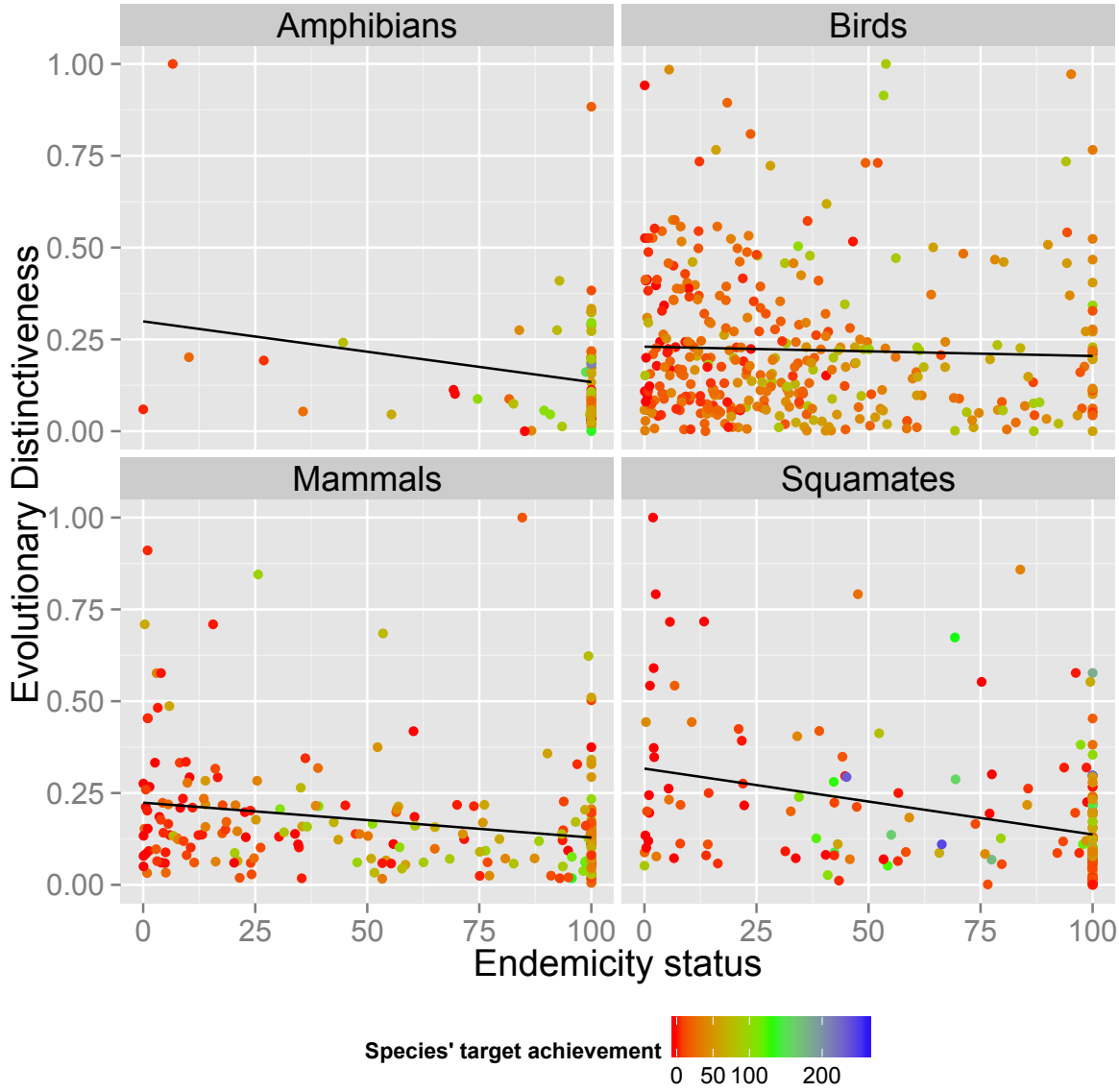

Figure S7. Evolutionary distinctiveness in function of endemicity status (% of global range encapsulated in the European region under study). When endemicity equals to 100%, it means the species is a strict endemic of the European region under study.

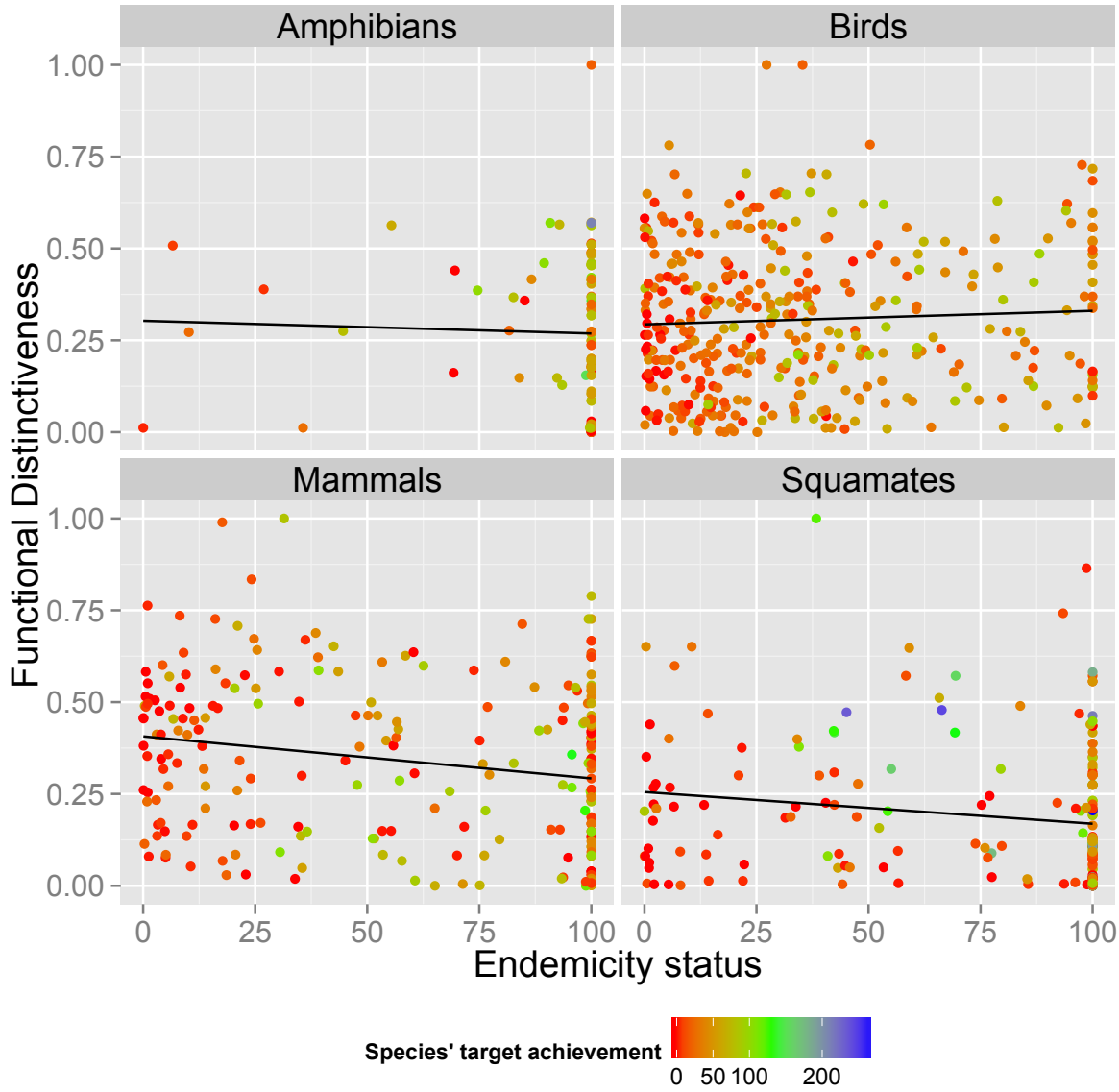

Figure S7. Functional distinctiveness (Y-axis) in function of percentage of global range encapsulated in Europe (endemicity status, X-axis). When endemicity equals to 100%, it means the species is a strict endemic of the European region under study.

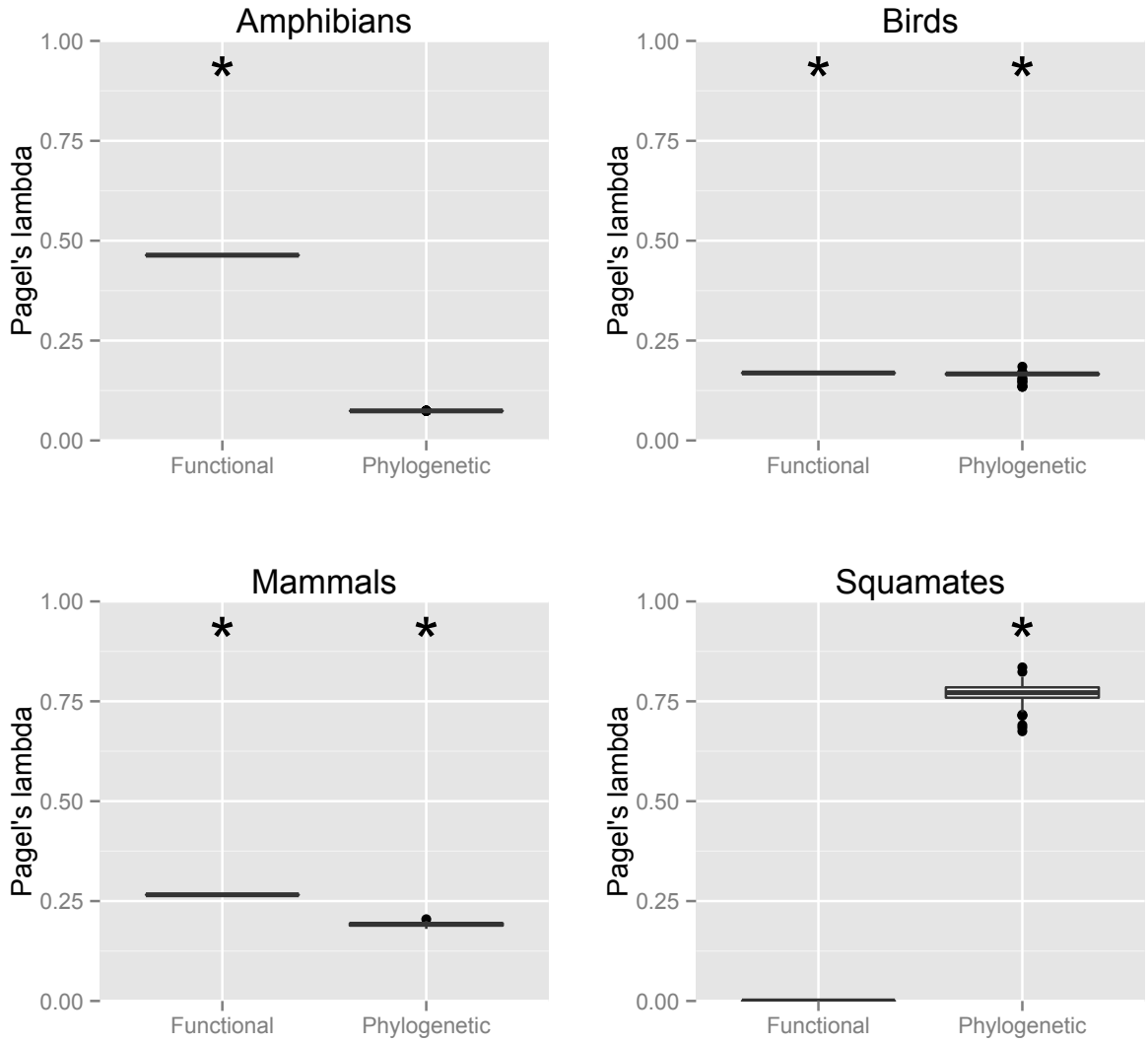

Figure S9. **Phylogenetic and functional signals of species' target achievement**. We used a maximum-likelihood based measurement of phylogenetic/functional signal, namely lambda model, as developed by [2]. This metric corresponds to a tree transformation parameter, which gradually eliminates phylogenetic/functional structure when varying from 1 to 0. Lambda transformation is performed by multiplying the off-diagonal elements of the variance/covariance matrix describing the tree topology and branch lengths. Lambda values of 1 correspond to a Brownian evolution, whereas at the other extreme a lambda value of 0 corresponds with the complete absence of phylogenetic/functional structure (star-like phylogeny). The estimated lambda can be compared to zero by computing a likelihood ratio and comparing it to a chi-square distribution with one degree of freedom. Hence testing for a significant phylogenetic signal, relative to phylogenetically unstructured data. The stars on the top of each barplot correspond to a signal significantly different from 0. For the phylogenetic

signal, we use False Discovery Rate to estimate the phylogenetic signal across the 100 trees.

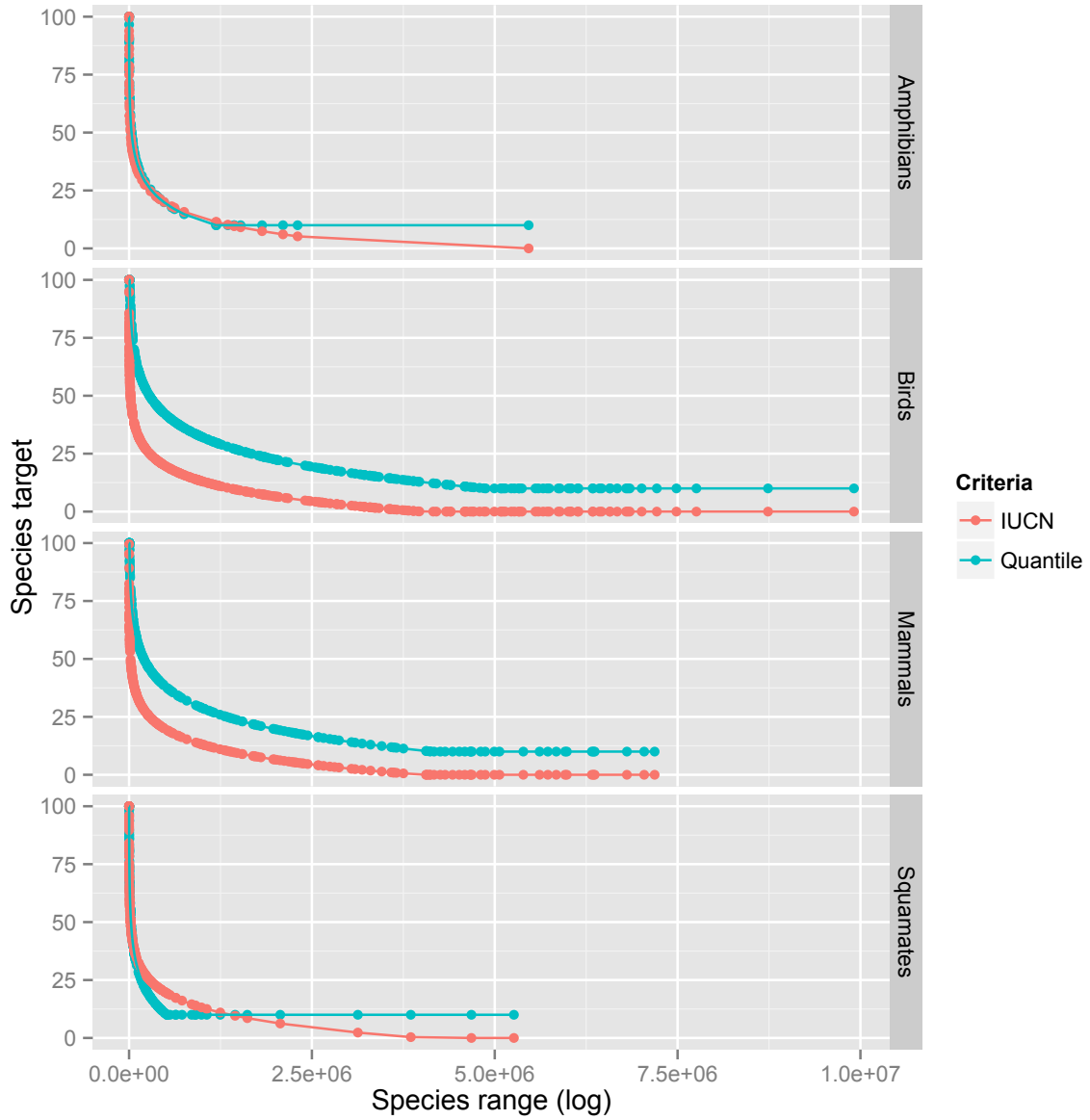

Figure S10 Relationship between species' targets and species ranges in function of the criteria used. The "quantile" approach is the one used in the main text (Figure S1). The second one used IUCN categories. We used the criteria B1 based on species range to define critically endangered species, species with less than 100km^2 range and vulnerable for species with less than 10,000km^2. We arbitrarily set that critically endangered species should be protected at 100% and vulnerable at 50%. We then used a regression along these two points to set species targets for all species. Although the ICUN approach is not group-specific the species targets are pretty similar to the ones defined through the quantile approach. Only birds and mammals do differ meaning that our Quantile approach is more severe than the IUCN one (i.e. the quantile approach asks for larger targets meaning high species' target achievement are more difficult to reach).

Table S1. *P-value* of the OLS regression lines of figure 2 and 3 and the associated r-squares of the regressions.

		Evolutionary distinctiveness	Functional distinctiveness
Amphibian	*p-value*	0.8	**0.01**
	R^2	0.0007	0.066
Birds	*p-value*	0.79	0.29
	R^2	0.0002	0.003
Mammals	*p-value*	0.46	0.27
	R^2	0.002	0.004
Squamates	*p-value*	0.56	**0.049**
	R^2	0.002	0.02

Table S2. Representation of the land cover types in Europe and their representation in the European protected area network. A pixel has a resolution of 300m. Only the total number of pixels of each land cover type is represented (No of pixels), as well as the number of pixels that fall within a protected area (No of pixels within PAs) and the associated percentage of protection (% in PA)

11	Post-flooding or irrigated croplands (or aquatic)	2782	59	2
13	Post-flooding or irrigated herbaceous crops	170896	10485	6
14	Rainfed croplands	16934587	746667	4
15	Rainfed herbaceous crops	199	31	16
16	Rainfed shrub or tree crops (cash crops, vineyards, olive tree, orchardsà)	23959	737	3
20	Mosaic cropland (50-70%) / vegetation (grassland/shrubland/forest) (20-50%)	17886778	740541	4
21	Mosaic cropland (50-70%) / grassland or shrubland (20-50%)	2093	42	2
30	Mosaic vegetation (grassland/shrubland/forest) (50-70%) / cropland (20-50%)	7894080	53178	1
32	Mosaic forest (50-70%) / cropland (20-50%)	6420	1273	20
40	Closed to open (>15%) broadleaved evergreen or semi-deciduous forest (>5m)	38	6	16
41	Closed (>40%) broadleaved deciduous forest (>5m)	1655	132	8
50	Closed (>40%) broadleaved deciduous forest (>5m)	21609742	1803096	8
60	Open (15-40%) broadleaved deciduous forest/woodland (>5m)	701	34	5
70	Closed (>40%) needleleaved evergreen forest (>5m)	3464303	791684	23
90	Open (15-40%) needleleaved deciduous or evergreen forest (>5m)	8819597	571849	6
91	Open (15-40%) needleleaved deciduous forest (>5m)	101	1	1
92	Open (15-40%) needleleaved evergreen forest (>5m)	6442376	461757	7
100	Closed to open (>15%) mixed broadleaved and needleleaved forest (>5m)	13182533	698442	5
101	Closed (>40%) mixed broadleaved and needleleaved forest (>5m)	18668	3418	18
110	Mosaic forest or shrubland (50-70%) / grassland (20-50%)	4677509	432529	9
120	Mosaic grassland (50-70%) / forest or shrubland (20-50%)	664653	87181	13
130	Closed to open (>15%) (broadleaved or needleleaved, evergreen or deciduous) shrubland (<5m)	1877892	339533	18
131	Closed to open (>15%) broadleaved or needleleaved evergreen shrubland (<5m)	9231	2611	28
134	Closed to open (>15%) broadleaved deciduous shrubland (<5m)	406326	40537	10
140	Closed to open (>15%) herbaceous vegetation (grassland, savannas or lichens/mosses)	669622	65468	10

141	Closed (>40%) grassland	2350065	148420	6
143	Open grassland	1853	148	8
150	Sparse (<15%) vegetation	21618525	2177227	10
151	Sparse (<15%) grassland	2049257	30026	1
152	Sparse (<15%) shrubland	802712	106979	13
180	Closed to open (>15%) grassland or woody vegetation on regularly flooded or waterlogged soil - Fresh, brackish or saline water	2848224	233475	8
190	Artificial surfaces and associated areas (Urban areas >50%)	1097134	27652	3
200	Bare areas	1239330	198848	16
201	Consolidated bare areas (hardpans, gravels, bare rock, stones, boulders)	13478	6146	46
202	Non-consolidated bare areas (sandy desert)	3548	2058	58
203	Salt hardpans	791	356	45
210	Water bodies	4302439	553591	13
220	Permanent snow and ice	5256077	1647068	31
230	No data (burnt areas…)	526	16	3
190	Artificial surfaces and associated areas (Urban areas >50%)	1097134	27652	3

[1] Pearman, P.B., Lavergne, S., Roquet, C., Wuest, R., Zimmerman, N.E. & Thuiller, W. 2014 Phylogenetic patterns of climatic, habitat and trophic niches in a European avian assemblage. *Global Ecology and Biogeography*.
[2] Pagel, M.D. 1997 Inferring evolutionary processes from phylogenies. *Zoologica Scripta* **26**, 331-348.