

 <p>ICELAND LIECHTENSTEIN NORWAY <b>eea grants</b></p>	 <p><b>UNIVERSITATEA OVIDIUS DIN CONSTANȚA</b></p> <p>FINANCIAL MECHANISM OF THE EUROPEAN ECONOMIC AREA 2009-2014 Programme BG03 Biodiversity and Ecosystem Services</p> <p>East and South European Network for Invasive Alien Species – A tool to support the management of alien species in Bulgaria ESENIAS-TOOLS, Д-33-51/30.06.2015</p>	 <p><b>IBER</b></p>  <p><b>ESENIAS</b> East and South European Network for Invasive Alien Species</p>
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**ESENIAS-TOOLS WG6 Meeting:**

**Data collection, analysis, standardisation and harmonisation**

**on alien terrestrial vertebrate species**

**22-24 November 2015, Constanta, Romania**

The meeting was organized by Dan Cogalniceanu, Memedemin Danyiar, Marius Skolka, Florina Stanescu, and Cristina Preda



The meeting was attended by 24 participants, of which 6 from Bulgaria, one from Croatia, one from Turkey and 16 from various institutions from Romania.

<b>No.</b>	<b>Name</b>	<b>Country</b>	<b>Organisation</b>
1	Teodora Trichkova	Bulgaria	Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences
2	Ivan Botev	Bulgaria	Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences
3	Yordan Koshev	Bulgaria	Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences
4	Ivailo Raykov	Bulgaria	Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences
5	Radoslav Stanchev	Bulgaria	Executive Environment Agency
6	Nedko Nedyalkov	Bulgaria	National Museum of Natural History
7	Sonja Desnica	Croatia	State Institute for Nature Protection
8	Umit Kebapci	Turkey	Duzce University
9	Mihai Avedic	Romania	Romanian Ornitological Society NGO
10	Gabriel Chisamera	Romania	Museum of Natural History Grigore Antipa
11	Laurentiu Rozyłowicz	Romania	University Ovidius Constanta
12	Cristina Preda	Romania	University Ovidius Constanta
13	Teodora Onciu	Romania	University Ovidius Constanta
14	Memedemin Daniyar	Romania	University Ovidius Constanta
15	Marius Skolka	Romania	University Ovidius Constanta
16	Dan Cogalniceanu	Romania	University Ovidius Constanta
17	Florina Stanescu	Romania	University Ovidius Constanta
18	Marian Tudor	Romania	University Ovidius Constanta
19	Ruben Iosif	Romania	University Ovidius Constanta
20	Diana Szekely	Romania	Chelonia Romania NGO
21	Paul Szekely	Romania	Chelonia Romania NGO
22	Alexandra Telea	Romania	University Ovidius Constanta
23	Dragos Balasoiu	Romania	University Ovidius Constanta
24	Razvan Zaharia	Romania	Oceanic Club NGO

## 22 November. Field trip.

We organized a visit to the southern part of the Danube Delta Biosphere Reserve, at Histria Archaeological site, Sinoe Lagoon and coastal zone of the Black Sea at Vadu – Corbu, where several invasive alien species could be observed.



## 23 November. Workshop meeting organized at University Ovidius Constanța.

09:30 - 10:00 Registration and coffee.

10:00 - 13:00 Presentation of the terrestrial alien vertebrate species from the region by the participants.

- Romania - Florina Stanescu. List of terrestrial alien vertebrate species from the region included in public databases.
- Croatia - Sonja Desnica. Alien terrestrial vertebrate species from Croatia.
- Turkey - Umit Kebapci. Alien vertebrates of Turkey.
- Bulgaria - Yordan Koshev, Boris Nikolov, Nikolai Tzankov, Nedko Nedyalkov, Ivaylo Raykov. Alien terrestrial vertebrate species in Bulgaria.

Discussion and agreement on the list of species.

Selecting species for species sheets.

13:00 - 14:00 Lunch break.

14:00 - 14:15 Pet trade - an undervalued source of vertebrate alien species (Marian Tudor).

14:15 - 15:00 Agreeing on protocols for additional data collecting.

15:00 - 16:00 Prioritisation criteria. Study case using alien vertebrate species (Cristina Preda).

Discussion.

16:00 - 17:00 Case study. Data requirements and species selection criteria (Ruben Iosif).

Discussion.

17:00 - 18:00 Wrap up and closure.

### **Main outputs of the meeting**

During the first part of the workshop, the discussion was focused on the criteria required to include species on the list for the region. We finally agreed on a common list that each country will update, according to the criteria established. Several important decisions were made:

1. Species recorded only as vagrant, incidental, accidental, casual, and species escaped from captivity, which did not establish wild populations, will not be considered for the list of priority species. Instead, a common watchlist for the region will be prepared for these species.
2. Domesticated species that did not establish feral populations will not be considered.
3. It was also decided that the whole territory of Turkey (i.e. both European and Anatolian parts) and the whole of Greece (i.e. continental and islands, including Crete) will be included in the project.

Several taxonomic questions were addressed regarding the status of some species:

1. Hybrids should not be considered as separate taxa, since they are a result of an alien species introduction.
2. The taxonomic validity of *Chamaeleo africanus* in Greece was argued. Kosuch et al. (1999) and Dimaki et al. (2008) supported the allocation of Greek chameleons to *Chamaeleo africanus* using molecular analyses. However, the origin of Greek *C. africanus* is still unclear since the studies showed clear differentiations between Greek and African populations.

3. What is the status of the hedgehog (genus *Erinaceus*) and which species within the genus are native and which alien?
4. The taxonomic status of the house mouse *Mus musculus* is also unclear.
5. The taxonomic status of the spiny mouse, *Acomys minous* from Crete was also

debated. According to recent information (Giagia-Athanasopoulou et al. 2011), only

*Acomys cahirinus* should be mentioned since *A. minous* is actually a subspecies.

Further discussions:

1. It was agreed that the two species of rats, although introduced since historical times and widespread should be kept on the list due to their high impact on native fauna. Also, there are several ongoing eradication projects underway on Croatian islands, targeting the rats.
2. Turkey decided to remove *Oxyura jamaicensis* from their list, since the species hybridizes and the hybrids are difficult to identify.
3. The mouflon (*Ovis musimon*) was added to the list of alien species since it established feral populations in Croatia and Bulgaria.
4. All Anseriformes are vagrant or incidental in Croatia and should not be considered invasive.
5. *Mycteria ibis* is reported only as vagrant in the region, thus not invasive. However, experts from the other participant countries should also check and agree.
6. *Alectoris chukar* is native to Turkey and Bulgaria and should not be included in their list.
7. Two additional invasive species were reported by Turkey: the white eared bulbul (*Pycnonotus leucotis*) and the Italian wall lizard (*Podarcis siculus*).
8. An important subject raised was the status of species extinct in the past and reintroduced recently, as is the case of the European beaver successfully reintroduced in Romania or the marmot (*Marmota marmota*) that was (re)introduced in Romania but apparently it never inhabited the Carpathians.

9. The issue of the slider terrapin *Trachemys scripta* was raised in order to differentiate between populations consisting of released animals that do not reproduce and populations reproducing (established).
10. Romania signaled two species that should be included in their watchlist: the Alexandrine parakeet (*Psittacula eupatria*) and the monk parakeet (*Myiopsitta monachus*) which are frequently released in urban areas by their owners.

At the end of the discussion, a common preliminary list of alien species was agreed upon and it will be distributed to all partners in the project - to be completed by dr. Stănescu Florina. Species considered invasive in a particular country will be marked accordingly. For all data and information included in the database, the source should be clearly indicated. Alien species with invasive potential reported as incidental, accidental, occasional, vagrant, not established should be added on regional watchlist, since they may become invasive in the future.

The preliminary list of invasive alien terrestrial vertebrates from the ESENIAS region.

No.	Class	Order	Family	Species	Common name
1	Amphibia	Anura	Ranidae	<i>Lithobates catesbeianus</i>	American Bullfrog
2	Aves	Anseriformes	Anatidae	<i>Aix galericulata</i>	Mandarin Duck
3	Aves	Anseriformes	Anatidae	<i>Aix sponsa</i>	Wood Duck
4	Aves	Anseriformes	Anatidae	<i>Alopochen aegyptiacus</i>	Egyptian Goose
5	Aves	Anseriformes	Anatidae	<i>Anser cygnoides</i>	Swan Goose
6	Aves	Anseriformes	Anatidae	<i>Anser indicus</i>	Bar-headed Goose
7	Aves	Anseriformes	Anatidae	<i>Branta canadensis</i>	Canada Goose
8	Aves	Anseriformes	Anatidae	<i>Cygnus atratus</i>	Black Swan
9	Aves	Anseriformes	Anatidae	<i>Oxyura jamaicensis</i>	Ruddy Duck
10	Aves	Ciconiiformes	Ciconiidae	<i>Mycteria ibis</i>	Yellow-billed Stork
11	Aves	Columbiformes	Columbidae	<i>Streptopelia roseogrisea</i>	African Collared-dove
12	Aves	Columbiformes	Columbidae	<i>Streptopelia senegalensis</i>	Laughing Dove

13	Aves	Galliformes	Odontophoridae	<i>Colinus virginianus</i>	Bobwhite Quail
14	Aves	Galliformes	Phasianidae	<i>Alectoris chukar</i>	Chukar Partridge
15	Aves	Galliformes	Phasianidae	<i>Alectoris rufa</i>	Red-legged Partridge
16	Aves	Galliformes	Phasianidae	<i>Coturnix japonica</i>	Japanese Quail
17	Aves	Galliformes	Phasianidae	<i>Phasianus colchicus</i>	Common Pheasant
18	Aves	Passeriformes	Fringillidae	<i>Serinus pusillus</i>	Fire-fronted Serin
19	Aves	Passeriformes	Pycnonotidae	<i>Pycnonotus leucotis</i>	White-eared Bulbul
20	Aves	Passeriformes	Sturnidae	<i>Acridotheres tristis</i>	Common Myna
21	Aves	Pelecaniformes	Threskiornithidae	<i>Threskiornis aethiopicus</i>	African Sacred Ibis
22	Aves	Psittaciformes	Psittacidae	<i>Melopsittacus undulatus</i>	Budgerigar
23	Aves	Psittaciformes	Psittacidae	<i>Myiopsitta monachus</i>	Monk Parakeet
24	Aves	Psittaciformes	Psittacidae	<i>Psittacula eupatria</i>	Alexandrine Parakeet
25	Aves	Psittaciformes	Psittacidae	<i>Psittacula krameri</i>	Rose-ringed Parakeet
26	Mammalia	Carnivora	Canidae	<i>Nyctereutes procyonoides</i>	Raccoon Dog
27	Mammalia	Carnivora	Mustelidae	<i>Neovison vison</i>	American mink
28	Mammalia	Carnivora	Procyonidae	<i>Procyon lotor</i>	Northern Raccoon
29	Mammalia	Carnivora	Herpestidae	<i>Herpestes javanicus</i>	Javan Mongoose
30	Mammalia	Cetartiodactyla	Bovidae	<i>Ammotragus lervia</i>	Barbary Sheep
31	Mammalia	Cetartiodactyla	Bovidae	<i>Capra ibex</i>	Ibex
32	Mammalia	Cetartiodactyla	Bovidae	<i>Ovis musimon</i>	Mouflon
33	Mammalia	Cetartiodactyla	Cervidae	<i>Axis axis</i>	Chital
34	Mammalia	Cetartiodactyla	Cervidae	<i>Dama dama</i>	Fallow Deer
35	Mammalia	Cetartiodactyla	Cervidae	<i>Odocoileus virginianus</i>	White-tailed Deer

36	Mammalia	Eulipotyphla	Erinaceidae	<i>Erinaceus concolor</i>	Eastern European Hedgehog
37	Mammalia	Lagomorpha	Leporidae	<i>Oryctolagus cuniculus</i>	European Rabbit
38	Mammalia	Rodentia	Cricetidae	<i>Ondatra zibethicus</i>	Muskrat
39	Mammalia	Rodentia	Muridae	<i>Acomys cahirinus</i>	Cairo Spiny Mouse
40	Mammalia	Rodentia	Muridae	<i>Rattus norvegicus</i>	Brown Rat
41	Mammalia	Rodentia	Muridae	<i>Rattus rattus</i>	House Rat
42	Mammalia	Rodentia	Myocastoridae	<i>Myocastor coypus</i>	Nutria
43	Mammalia	Rodentia	Sciuridae	<i>Sciurus anomalus</i>	Caucasian Squirrel
44	Reptilia	Squamata	Chamaeleonidae	<i>Chamaeleo africanus</i>	African Chameleon
45	Reptilia	Squamata	Lacertidae	<i>Podarcis siculus</i>	Italian Wall Lizard
46	Reptilia	Testudines	Emydidae	<i>Trachemys scripta</i>	Red-eared Slider Turtle

It was also agreed to include in the watchlists alien species with invasive potential such as captive alien species kept as pets and which are occasionally released by their owners.

### **Pet trade monitoring**

Dr. Marian Tudor will forward a protocol for monitoring and evaluating the risks of pet trade, which will include apart from terrestrial vertebrates, also plants, freshwater species and terrestrial invertebrates. The final protocol will also have to be agreed upon by the other WGs.

### **Prioritisation criteria**

Dr. Cristina Preda presented a set of prioritization protocols that include both the range and impact of the invasive species. It was discussed if the prioritization should be done at national or regional levels and what should be the minimal criteria required for an effective process of prioritization. It was decided that a minimal set of criteria will be required and only species for which the minimal information is available will be included in the prioritization exercise. Additional columns will be included in the data sheet inquiring about the data availability for each country.



### **Case study**

Modelling the ecological niche of invasive alien species requires detailed data both from the native range and also from the invaded region. Depending on the data provided, several species will be selected.