

• FLORA AND FAUNA

Implementation of PMS BIOTA

The BIOTA partial monitoring system has long been affected and threatened by inadequate implementation of the Concept of actualisation and rationalization of the environmental monitoring related to the amount of assigned funds. In fact, in 2008 there were no financial means given for its implementation. The State Nature Conservancy of the SR used their own resources to carry out the monitoring of 26 % of all permanent monitoring areas planned for 2008.

The Flora Subsystem. In line with the plan for 2005-2010, there are 150 sites with the occurrence of 37 species of vascular plants of European importance that are monitored annually. However, in 2008 only 11 species in 50 sites were successfully monitored.

The Fauna Subsystem. Of 2 groups and 6 species of animals of the European importance monitored so far, only 4 species were monitored: *Rupicapra rupicapra*, *Lutra lutra*, *Spermophilus citellus*, and *Marmota marmota*, on a limited number of permanent areas.

The **Habitats Subsystem** has not been implemented for a longer time period.

Flora

◆ Endangerment of plant taxons

State of endangerment of plant taxons in 2008

Group	Total number of taxons		Endangered (IUCN cat.)						Ed
	World (global estimation)	Slovakia	EX	CR	EN	VU	LR	DD	
Cyanophytes and Algae	50 000	3 008	-	7	80	196	-	-	-
Lower fungi	80 000	1 295	-	-	-	-	-	-	-
Higher fungi	20 000	2 469	5	7	39	49	87	90	-
Lichens	20 000	1 585	88	140	48	169	114	14	-
Bryophytes	20 000	909	26	95	104	112	85	74	2
Vascular plants	250 000	3 352	77	266	320	430	285	50	220

Source: SNC SR

Legend:

Ed – endemic species

IUCN categories of endangerment:

EX – extinct

CR – critically endangered

EN – endangered

VU – vulnerable

LR – less endangered

DD – data deficient

Level of **endangerment of non-vascular plants** in Slovakia is presently **17.6 %** (including fungi). Level of **endangerment of vascular plants** is **42.6 %** (for all endangerment categories), or **30.3 %**. (for the CR, EN, and VU categories).

Comparison of the vascular plant endangerment* in selected countries

	Slovakia	Austria	Hungary	Poland	Czech Rep.
Vascular plants (%)	30.3	33.4	19.8	11.0	42.5

Source: OECD Environmental Data Compendium, 2008

* Among “endangered” taxons are those taxons classified under categories: CR, EN, and VU under IUCN. Czech Rep.: Data include extinct species.

◆ **Protection of plant taxons**

Protection of plant taxons is in the presence regulated by the **Resolution of MoE SR No. 24/2003 Coll.** to the *Act on Nature and Landscape Protection No. 543/2002 Coll.* as amended by Resolution 492/2006 Coll., Resolution 638/2007 Coll and Resolution 579/2008 Coll.. Number of the **state protected taxons** is now **1 418** (vascular plants – 1 285; bryophytes – 47; higher fungi – 70; lichens – 17). There are **823 taxons** occurring in Slovakia (vascular plants – 713, bryophytes – 23, higher fungi – 70, lichens – 17).

Wild-growing plant taxons in Slovakia protected by international conventions and EU regulations

	Cyanophytes and Algae	Fungi	Lichens	Bryophytes	Vascular plants
In attachment II of Habitats Directive	-	-	-	9	40
In attachment IV of Habitats Directive	-	-	-	-	42
In attachment V of Habitats Directive	-	-	-	2*	3**
In attachment I and II of CITES	-	-	-	-	110
In attachment I of Bern Convention	-	-	-	8	35

* *Leucobryum glaucum* and the entire genus *Sphagnum*

Source: SNC SR

** *Artemisia eriantha*, *Galanthus nivalis*, including the entire genus *Lycopodium*

In 2008, there was a transfer of 74 plants of the species of *Dactylorhiza sambucina* **within the scheme of transfers, reintroductions, and restitutions** of the endangered plant species.

New **rescue programmes** for the species of *Radiola linoides* and *Tephroses longifolia* ssp. *moravica* were developed in 2008. For the species of *Alkanna tinctoria*, *Liparis loeselii*, *Colchicum arenarium*, *Spiranthes spiralis*, *Herminium monorchis*, *Drosera anglic* and *Lycopodiella inundata* the programmes were updated. Implemented were also rescue programmes for *Anacamptis pyramidalis*, *Carex chordorrhiza*, *Orchis elegans*, *Orchis palustris*, *Pulsatilla pratensis* ssp. *flavescens*, *Pulsatilla zimmermannii*, *Drosera anglica*, *Lycopodiella inundata*, *Ophrys holubyana*, *Orchis coriophora* ssp. *coriophora*, *Rhynchospora alba*, *Scheuchzeria palustris*, *Glaux maritima* and *Carex pulicaris*.

Actual problem endangering the diversity of plant species in last years has been becoming **invasive species**. Of the 616 introduced species of plants in Slovakia, 7 are classified as **invasive** pursuant to Regulation 24/2003 Coll., and 89 as potentially invasive plant species. **Number of sites** with the occurrence of invasive plant species has been **rising** every year. No register of invasive species of animals has yet been developed for the territory of Slovakia.

In 2008, **elimination** of invasive plant species was carried out at 72 sites in protected areas of the size of 419,8 ha. This activity followed up on the measures implemented also in the previous years. 14 species of introduced and invasive plant species were thus eliminated: *Robinia pseudoacacia*, *Ailanthus altissima*, *Negundo aceroides*, *Fallopia japonica*, *Heracleum mantegazzianum*, *Fraxinus americana*, *F. lanceolata*, *F. pennsylvanica*, *Solidago canadensis*, *Impatiens glandulifera*, *Impatiens parviflora*, *Asclepias syriaca*, *Solidago gigantea*, *Stenactis annua*, *Aster lanceolatus* a *Helianthus tuberosus*.

Outside the protected areas, eliminated were 4 invasive, 1 expansive, and 1 occasionally invasive plant species at 59 sites of the size of 85.7 ha: *Fallopia japonica*, *Heracleum mantegazzianum*, *Impatiens glandulifera*, *Rhus typhina*, *Digitalis purpurea* – occasionally invasive taxon, *Calamagrostis epigeios* – expansive taxon.

Fauna

◆ Endangerment of animal species

State of endangerment of the particular invertebrate taxons

Taxons	Number of taxons		Categories of endangerment (IUCN)							Endang erment total	Endang. %
	World	SR	EX	CR	EN	VU	LR	DD	NE		
Mollusca	128 000	277	2	26	22	33	45	8	135	136*	49.1
Aranea	30 000	934	16	73	90	101	97	45	-	422	45.2
Ephemers	2 000	132	-	8	17	16	-	-	-	41	31.1
Odonata	5 667	75	4	-	14	11	13	5	-	47	62.7
Orthoptera	15 000	118	-	6	7	10	20	10	-	53	44.9
Heteroptera	30 000	801	-	14	7	6	4	-	-	31	3.9
Coleoptera	350 000	6 498	2	15	128	490	81	2	-	718	11.1
Hymenoptera	250 000	5 779	-	23	59	203	16	-	-	301	5.2
Lepidoptera	100 000	3 500	6	21	15	41	17	11	-	111	3.2
Diptera	150 000	5 975	-	5	10	71	19	93	-	198	3.3

* without the category of NE

Source: SNC SR

Level of endangerment of invertebrates in Slovakia is presently 8.5 %.

State of endangerment of the particular vertebrate taxons

Taxons Group	Number of taxons		Categories of endangerment (IUCN)							Total	%
	World ¹⁾	SR	EX	CR	EN	VU	LR	DD	NE		
Lampreys		4	-	-	1	1	1	-	-	3	75.0
Pisces	25 000	79	4	-	6	9	40	-	-	59	74.7
Amphibians	4 950	18	-	-	3	5	10	-	-	18	100.0
Reptiles	7 970	12	-	1	-	4	6	-	-	11	91.6
Birds ²⁾	9 946	219	2	7	23	19	47	4	19	121	55.3 (35.5 ³⁾)
Mammals	4 763	90	2	2	6	12	27	15	4	68	75.6

¹⁾ Source: UNEP – GBO

Source: SNC SR

²⁾ only nesting birds – of total number of 341 birds of Slovakia, only the all 219 species of nesting birds were assessed

³⁾ % of total number of birds 341

IUCN Categories:

EX - extinct taxon

CR - critically endangered taxon

EN - endangered taxon

VU - vulnerable taxon

LR - lower risk taxon

DD - data deficient taxon

NE - non evaluated taxon

Comparison of vertebrates endangerment¹⁾ in selected countries (%)

	Slovakia	Austria	Hungary	Poland	Czech Rep.
Invertebrates	5.3	-	> 0.9	-	13.1
Pisces	24.1	50.6	43.2	21.0	41.5
Amphibians	44.4	60.0	27.8	-	61.9
Reptiles	38.5	64.3	33.3	33.3	72.7
Birds	14.0	27.7	14.5	7.8	55.0
Mammals	21.7	22.0	37.8	13.5	20.0

Source: OECD

¹⁾ “endangered” taxons include species under categories: CR, EN, and VU under IUCN

Austria) invertebrates: *insecta*, *decapoda*, *mysidacea* and *mollusca*, birds: only nesting birds

Czech Rep.) data refer to autochthonous species and EX including, birds: only nesting birds, pisces: including lampreys

Hungary) birds: all species recorded in Hungary since 1800

Poland) pisces: including lampreys.

◆ Protection of animal species

Protection of animal species is regulated by the **Resolution of MoE SR No. 24/2003 Coll.**, which implements the *Act on nature and landscape protection No. 543/2002 Coll.* as amended. The number of **animal taxons under state protection** is now **813 taxons** on the level of species and subspecies and to **12 taxons** on the level of genus.

Animal wildlife in Slovakia protected by international conventions and EU regulations

	Invertebrates	Pisces	Amphibians	Reptiles	Birds	Mammals
In annex II of Habitats Directive	53	23	5	1	-	24
In annex IV of Habitats Directive	50	1	10	9	-	46
In annex I of Birds Directive ¹⁾	-	-	-	-	114	-
In annexes I and II of CITES	2	2	-	1	53	5
In annexes II and III of Bern Convention	33	38	19	12	357	65
In annexes II and III of Bonn Convention	-	3	-	-	209	24
In annex of AEWA*	-	-	-	-	129	-

* AEWA – African-Eurasian Migratory Water Bird Agreement

Source: SNC SR

¹⁾ – including migratory birds

Rescue programmes (RP) in 2008 were processed for the following taxons: *Castor fiber*, *Mustela lutreola* and butterflies of *Maculinea* genus. Realized were RP for *Parnassius apollo*, *Umbra krameri*, *Bison bonasus*, *Aquila chrysaetos*, *Aquila pomarina*, *Falco cherrug*, *Falco peregrinus* and *Marmota marmota*.

In **rehabilitation stations** operated by the nature and landscape protection organizations there were **adopted** in 2008 altogether **440** injured individuals or otherwise disabled animals. Back to wild nature there were **released** altogether **234** individuals and there was spent more than 264.3 thous. SKK.

No animals were bred (and released) in maturation facilities in 2008.

There was provided **the guarding** of 122 nests of 7 bird of prey species (*Aquila chrysaetos*, *A. pomarina*, *A. heliaca*, *Haliaeetus albicilla*, *Falco peregrinus*, *F. vespertinus*, *Circus pygargus*) - information only for the organization organs of SNC SR. There were successfully **brought up 128 nestlings**, which is in average 1 brought up nestlings per nest and there were spent about 186 thous. SKK.

In term of in situ animal preservation in 2008 there were organized **transfers and restitutions** of protected and endangered animals into proper nature biotopes by nature and landscape protection organizations. There were these animals – *Spermophilus citellus*, *Marmota marmota latirostris*, *Umbra krameri*, *Castor fiber* and *Amphibia* and there was spent more than 238 thous. SKK.

Within the **improvement of nesting and living conditions** of animals, there were realized more than 400 actions, while there was invested more than 905 thous. SKK.

In concern of preventing the collisions of **migrating Amphibians** with the car transport, in 2008, transfers of amphibians were carried out and foil barriers were installed in total length of 27.7 km within the protected areas, as well as in open nature. There was invested more than 125 thous. SKK.

◆ Game stock and hunting and fishing

To 31st March 2008, the **spring stock numbers** of the ungulate game species, without Fallow deer species, were higher in comparison to the previous year. Hunting for the rare animal species is strictly regulated.

Spring stock of game and game hunting as of March 31 (pieces)

Species	2005		2006		2007		2008	
	stock	hunting	stock	hunting	stock	hunting*	stock	hunting*
Deer	39 738	14 030	41 105	12 888	41 287	15 185 ¹⁾	44 316	16 889 ¹⁾
Fallow deer	8 425	2 529	8 010	2 208	8 125	2 890 ¹⁾	9 068	3 210 ¹⁾
Roe deer	85 124	20 659	87 324	17 313	89 439	22 723 ¹⁾	92 680	24 704 ¹⁾
Wild boar	27 116	22 551	27 175	17 820	27 124	25 758 ¹⁾	29 290	29 700 ¹⁾
Brown hare	199 226	36 511	208 946	17 560	202 724	39 892 ¹⁾	203 123	34 470 ¹⁾
Grey partridge	17 293	484	15 579	10	13 285	535 ¹⁾	13 453	462 ¹⁾

COMPONENTS OF THE ENVIRONMENT AND THEIR PROTECTION

Pheasant	181 374	143 373	187 139	110 113	182 287	160 126 ¹⁾	190 279	135 332 ¹⁾
Chamois	625	12	665	8	645	10 ¹⁾	661	12 ¹⁾
Bear	1 483	35	1 577	16	1 739	25	1 939	34
Wolf	1 165	74	1 219	91	1 322	123	1 563	121
Otter	343	0	380	0	480	0	680	0

* Actual hunting in numbers, excluding other kills.

Source: SO SR

Amount of the fish **caught** in the fish ponds, water dams and water flows for economic and sport purposes achieved **2 734 t** in 2008. The waters were **stocked** by **42 474 852 pieces of setting**.

Fishing for the economic and sport purposes in 2008 (t)

Fish species	2004		2005		2006		2007		2008	
	total	of this SFA*	total	of this SFA*	total	of this SFA*	total	of this SFA*	total	of this SFA*
Fish total	2 783	1 565	2 652	1 663	2 979	1 697	2 871	1 659	2 734	1 639
Of these:										
Carp	1 360	988	1 281	1 092	1 597	1 169	1 430	1 146	1 430	1 166
Trouts	878	52	800	49	837	49	939	54	833	52
Crucians	80	75	76	71	117	71	8	66	94	62
White amur	28	28	33	24	39	33	45	40	41	36
Bighead carps	8	5	12	6	12	4	8	4	10	3
Sheat fish	36	35	37	35	34	33	40	39	37	36
Maskalonge	66	60	74	67	62	60	58	55	55	54
Sand-eel	78	76	83	82	65	64	68	60	63	63
Grayling	9	8	13	7	8	7	12	6	7	6
Huchen	1	1	1	1	1	1	0,2	0,2	0,7	0,7
Breams	98	98	106	105	95	94	76	75	70	69
Torgoch	0	0	9	1	2	1	3	1	2	0
Chevins	21	21	16	16	16	16	17	17	14	14
Other fish species	120	117	111	107	94	95	168	96	78	76

*SFA – Slovak Fishing Association

Source: SO SR

Implementation of the CITES in 2008

In 2008, there was a change in the implementation of the CITES convention in Slovakia through a novelised Slovak National Council Act 15/2005 Coll. on protection of the EU wildlife animals and plants, regulation of their trade, and on the amendment to other laws as amended by Act 672/2006 Coll. - a new **Slovak National Council law 452/2007 Coll.** was adopted.

Scientific body of the SR, pursuant to the national and EU legislation in 2008, commented 30 applications filed by the Ministry of Environment of the Slovak Republic (MoE SR) to import of individual animals belonging to the species listed under the CITES convention, 10 applications of the MoE SR to export such animals, and 15 applications of the MoE SR for consultation regarding the origin of individual animals at issuing certificates. Further, the body produced, upon the request of the MoE SR, circuit environmental offices, custom offices, and police other 109 position papers that relate to the area of the CITES convention.