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Invited article

NOTE

Annual trends in the 2024 National Species List of Korea: Update and implications for biodiversity management

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The National Species List of Korea was established to reinforce national sovereignty over biological resources, supporting compliance with international agreements such as the Nagoya Protocol, the Convention on Biological Diversity and standardized species names. As of 2024, the list includes 61,230 wild species in inhabiting the Korean Peninsula, reflecting the taxonomic identification and classification progress since its initial publication in 1996. The greatest increases in the number of species added to the list are among insects, invertebrates, fungi, and algae. Annual updates are made according to international nomenclatural codes, incorporating new species discoveries, synonym revisions, and taxonomic refinements. In 2024, 1,220 species are added, including synonymization and species re-identification. Since 2023, over 40 species originating from tropical regions (i.e., type locality) have been added each year, potentially indicating biodiversity shifts caused by climate change. Despite a recent decline in species discovery rates, national efforts such as the Korean Indigenous Species Investigation Project continue to play a key role in understanding the biodiversity of Korea and contributing to conservation policies. The full list is updated annually and is publicly accessible via the CBD-CHM Korea portal (https://www.kbr.go.kr).

Keywords: biodiversity, CBD-CHM Korea portal, climate change, taxonomic revision

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The National Species List of Korea was established to reinforce the nation's sovereignty over its biological resources in response to international frameworks such as the Nagoya Protocol (Secretariat of the Convention on Biodiversity, 2011) and the Convention on Biological Diversity (UNEP, 1992). In addition to its role in compliance with international agreements, the list provides standardized scientific and Korean name for species, supporting national biodiversity monitoring, and conservation planning for species management in Korea.

The first comprehensive compilation of species in Korea was published documenting 28,462 species by the Korean National Council for Conservation of Nature (1996). By 2007, prior to the establishment of the National Institute of Biological Resources, this number had increased to 29,916 species (Ministry of Environment, 2007). As of 2024, 61,230 species had been recorded on the National Species List, according to the latest report (https://www.kbr.go.kr) (Fig. 1).

The National Species List encompasses all the wild

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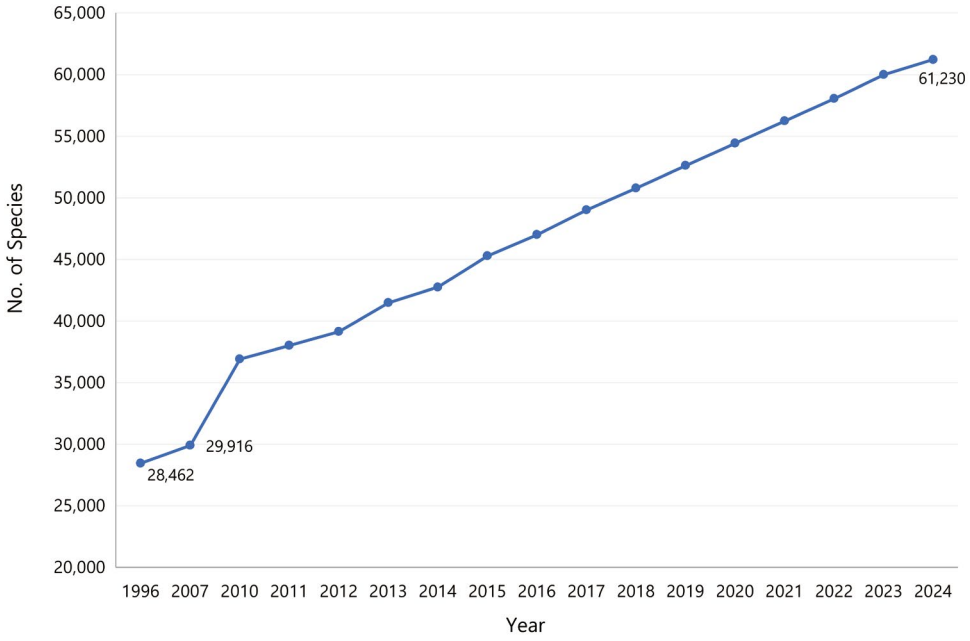

Fig. 1. Cumulative number of species recorded in the National Species List of Korea (1996–2024).

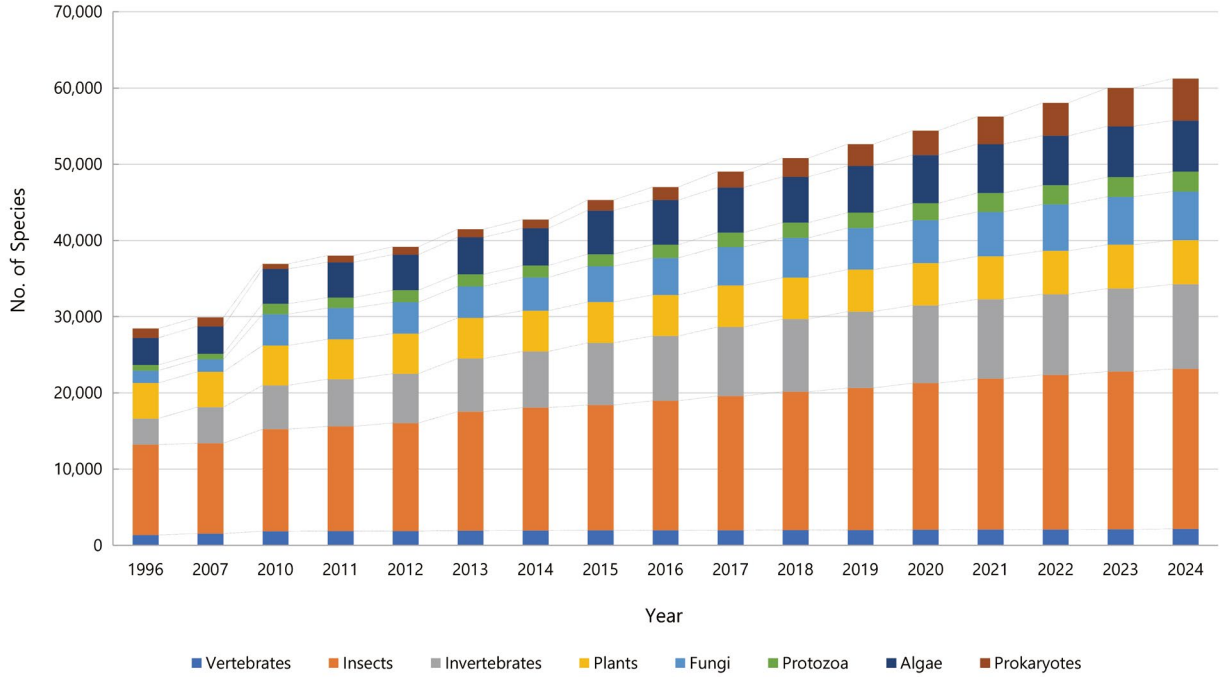

Fig. 2. Cumulative number of species by taxonomic groups in the National Species List of Korea (1996–2024).

species discovered on the Korean Peninsula. Since 1996, the most significant increase has occurred on the number of insect species (approximately 9,000 newly listed species), followed by invertebrates, fungi, algae, prokaryotes, plants, protozoa, and vertebrates (Fig. 2).

The National Species List is primarily based on the Eukaryota classification of the Catalogue of Life and follows a seven-kingdom system (https://www.catalogueoflife.org). The traditional six-kingdom Protista was an artificial assemblage that grouped together all eukaryotes not classified as plants, animals or fungi. Recent phylogenetic studies have reclassified these organisms into two king-

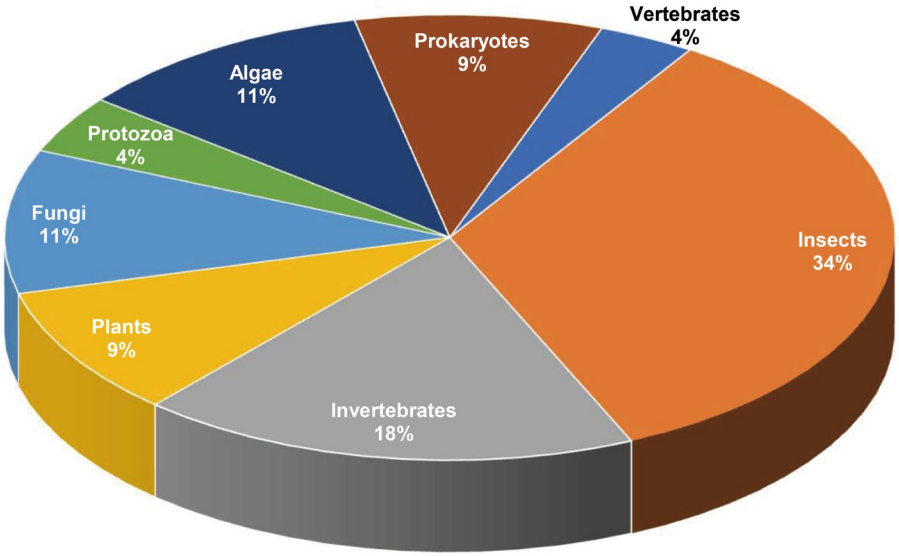

Fig. 3. Taxonomic composition of the 2024 National Species List of Korea.

doms: Chromista and Protozoa (Whittaker and Margulis, 1978; Ruggiero *et al*., 2015). Although algae constitute a polyphyletic group, the term remains widely used in biodiversity conservation and management. The term is used in biodiversity indicators and statistics-such as the Status of Species in the Korean Peninsula-for practical purpose in tracking biodiversity trends over time. In this context, "algae" encompasses Chlorophyta, Charophyta, and Rhodophyta (Plantae): Bacillariophyta, Dinophyta, Ochrophyta, Cryptophyta, Haptophyta, and Pyrrophyta (Chromista): Euglenophyta (Protozoa): and Cyanobacteria (Bacteria).

In the current National Species List (2024), the number of species by major taxonomic groups is 20,975 insects, 11,118 invertebrates, 6,703 algae, 6,402 fungi, 5,781 plants, 5,509 prokaryotes, 2,590 protozoa, and 2,152 vertebrates (Fig. 3).

The compilation and maintenance of the National Species List comply with Internationally recognized nomenclatural codes, including the International Code of Nomenclature for Algae, Fungi, and Plants, the International Code of Zoological Nomenclature, and the International Code of Nomenclature for Prokaryotes. The guidelines for compiling the list incorporate the principle of priority in determining valid names, the proper treatment of synonyms, and application of standardized formats for scientific names.

The National Species List is revised annually to reflect the updated accepted scientific names as determined by international nomenclatural codes, and synonymization. These updates are essential for the effective use of global species information, verification of imported and exported biological resources, and consistent comparisons of species composition across countries or regions.

In 2024, the list was updated with 327 newly described species, 925 species newly recorded in Korea, and 32 species removed. The net increase compared with the list in the previous year was 1,220 species (Table 1). Of the removed species, 23 were deleted because of synonymization, according to the International Code of Zoological Nomenclature. Synonyms were excluded if the valid name was already included in the list or if multiple names were consolidated into a single species. Nine species were excluded after they were confirmed as not distributed in Korea. 279 species records were updated due to synonymization.

Since 2023, the type locality and distribution data of newly added species in the National Species List have been examined to assess whether these species occur in tropical regions. In 2023 and 2024, 45 and 23 species, respectively were investigated as having type localities in tropical regions. While these findings represent only a conservative estimate based on available literature, they could tentatively suggest the occurrences of species under climate change and shift ecological condition.

Taxonomic studies in Korea have begun relatively recently compared with those in many developed countries. Nonetheless, significant advances have been achieved through Korean Indigenous Species Investigation Project, led by the Ministry of Environment. At its peak, this initiative identified over 1,300 new or previously unrecorded species per year (Bae *et al*., 2021). In recent years, the discovery rate has declined to approximately 950 species annually, reflecting the growing challenges in identifying novel taxa. Despite this decline, continued field investigations are critical for monitoring Korean biodiversity and supporting updates to the National Species List.

Table 1. The number of newly-added/excluded species in the 2024 National Species List of Korea.

Major taxon classification		Species newly included (excluded)	Details (higher taxonomic groups, species number, Korean name)
National species list	Management groups		
Plantae	Plants	22	Magnoliophyta 19 (제주사약채 등), Bryophyta 3 (태백담뱃대이끼 등)
Animalia	Vertebrates	62	Anguilliformes 1 (별꽃곰치), Blenniiformes 1 (뿔베도라치), Carcharhiniformes 1 (흑상어), Perciformes 7 (노랑무늬양쥐돔 등), Scorpaeniformes 1 (긴머리달재), Siluriformes 1 (금강자가사리), Anseriformes 2 (큰기러기 등), Charadriiformes 4 (뿔바다오리 등), Ciconiiformes 3 (중대백로 등), Falconiformes 5 (참매 등), Passeriformes 35 (오목눈이 등), Piciformes 1 (크낙새)
	Insects	296 (−31)	Coleoptera 98 (애기버섯벌레 등), Diptera 69 (독도점등에모기 등), Entomobryomorpha 1 (나도붓톡토기), Hemiptera 12 (까마중진딧물 등), Hymenoptera 51 (대한별쌍살벌 등), Lepidoptera 54 (한국창날개뿔나방 등), Orthoptera 1, Plecoptera 7 (가시민무늬강도래 등), Symphypleona 2종, Thysanoptera 1 (느티나무관총채벌레)
	Invertebrates	226 (−1)	Annelida 8 (나도홍점갯지렁이 등), Arthropoda 140 (굵은발꽃왕거미 등), Bryozoa 15 (쇠스랑가시바구니이끼벌레 등), Chordata 2 (황록세줄멍게 등), Cnidaria 15 (주황깃히드라 등), Echinodermata 4 (삼각애기불가사리 등), Hemichordata 1, Mollusca 10 (큰돌기배고둥붙이 등), Nematoda 12 (왕버들뿌리썩이선충 등), Platyhelminthes 11, Porifera 5, Rotifera 3
Protozoa	Protozoa	15	Apicomplexa 1, Ciliophora 13 (부리고개돌린섬모충 등), Foraminifera 1 (원판더미유공충)
Chromista	Algae	50	Bacillariophyceae 49, Coscinodiscophyceae 1
Fungi	Fungi	111	Ascomycota 58 (진녹색두건버섯 등), Basidiomycota 42 (줄무늬졸각버섯 등), Mucoromycota 7, Zygomycota 4
Bacteria	Prokaryotes	470	Acidobacteriota 1, Actinobacteria 1, Actinomycetota 111, Bacillota 47, Bacteroidota 69, Deinococcota 1, Pseudomonadota 237, Verrucomicrobiota 3
Total		1,252 (−32)	

The National Species List of Korea is publicly available and updated annually through the CBD-CHM Korea portal (https://www.kbr.go.kr) (Available under the "National Biodiversity Information" section).

Conflicts of interest

The authors of this paper have no affiliation with any interests and is solely responsible for the paper.

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