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Comparison of the IUCN and the National Biodiversity (Noah's Ark) Database

Levent BİLER*[1], Seda BİKRİÇ[2]

Abstract

This study aimed to compare the IUCN and The National Biodiversity (Noah's Ark) Data of plant and terrestrial animals (mammals, birds, reptiles, amphibians, and fish). When the number of plant taxa is compared, it is seen that the difference between the two databases is very high. The main reason for this difference is that the plant species are not thoroughly evaluated in the IUCN. Also, there are differences in animal species. One possible reason is that marine species have not been evaluated in Noah's Ark Database. Another possible reason is that as a result of researchers' taxonomic studies, some species are combined or separated. Elimination of the difference between these databases will provide a more accurate evaluation and interpretation.

Keywords: IUCN Red List, The National Biodiversity (Noah's Ark) Database, Red List Categories.

1. INTRODUCTION

Biodiversity loss is one of the world's critical issues nowadays. Many species are threatened and threatened with extinction. There is also an increasing awareness of how biodiversity supports human livelihoods. Governments and civil society set targets, as the Convention on Biological Diversity's 2010 reduces the current rate of biodiversity loss. In this context, The IUCN Red List of Threatened Species™ provides information on the state of and trends in wild species [1].

The IUCN Red List Categories and Criteria are considered the most objective and authoritative system available to assess the risk of species extinction globally [2, 3, 4, 5]. The IUCN Red List itself is the world's most comprehensive source of information updated annually about the global conservation status of plant and animal species. Population trends are based on an objective system that allows any species to be assigned to one of the eight Red List Categories, depending on whether they meet criteria based on size, structure, and geographic range [4].

One of the main goals of The IUCN Red List is to highlight species with a high risk of global

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extinction. However, it is not just a record of names and related threat categories. The real strength and utility of the IUCN Red List are what lies beneath: they are working on a rich expert-guided summary of information about the ecological requirements of the species, their geographical distribution, and what threats to nature are and how they will crusade them [1].

The IUCN Red List is not just limited to providing threat categorization. For an increasing number of species, whether threatened or not, it offers comprehensive information covering taxonomy (classification of species), conservation status, geographical distribution, habitat requirements, biology, threats, population, use, and conservation actions. All this information allows scientists to make detailed analyzes of biodiversity globally [1].

Only 2.5% of the estimated 1.8 million species in the world have been evaluated in the IUCN Red List. Therefore, the number of threatened species reported is much less than the actual amount at risk of severe extinction. The IUCN Red List, however, is the almost complete global list of these available species [1].

The Ministry of Agriculture and Forestry, General Directorate of Nature Conservation and National Parks prepared the National Biological Diversity Inventory and Monitoring Project, to reveal and protect Turkey's biodiversity, and inventory researches started in 81 provinces in 2013. By the beginning of 2020, the inventory studies of 81 provinces are complete, and Turkey's Biological Diversity Map revealed. In this context, plant, mammalian, bird, freshwater fish, reptile, and amphibian species were studied [6, 7].

Biodiversity inventory data from all Turkey's provinces is stored in National Biodiversity (Noah's Ark) Database. Thus, Turkey's biodiversity data can be queried on a table, graphic, and map basis through a database. Changes that will occur to protect and sustain the biodiversity can be observed [6, 7]. Mammalian, bird, freshwater fish, reptiles, and amphibian species threatened categories taken from the IUCN, but plant species categories were also assigned by expert judgment.

This research aims to compare the IUCN Red List and the National Biodiversity (Noah's Ark) Database for the plant, mammalian, bird, freshwater fish, reptile, and amphibian species in Turkey.

2. MATERIALS AND METHODS

The IUCN data is taken from the Summary Statistic Table 6a [Red List Category summary country totals (Animals)] and Table 6b [Red List Category summary country totals (Plants)] [8]. The National Biodiversity (Noah's Ark) Data were taken from the [7] source.

Both two databases were listed and prepared to compare with each other. While the IUCN only gives the animals a whole, The National Biodiversity (Noah's Ark) Data were combined. Comparisons and tables of the data were created.

3. RESULTS

The IUCN data included a total of 868 plant species for Turkey. The National Biodiversity (Noah's Ark) Data includes 11840 plant species. The comparison of the two data is given in Table 1 and demonstrated in Figure 1.

Table 1
The comparison of the IUCN and the National Biodiversity (Noah's Ark) Data of Plants in Turkey

	IUCN	**The National Biodiversity (Noah's Ark) Data**
EX *	0	4
EW *	0	0
CR *	67	482
EN *	41	707
VU *	23	1.316
NT *	31	291
LR/cd *	0	112
DD *	70	227
LC *	636	5.149
NE*	0	3.552
Total	**868**	**11.840**

*IUCN Red List Categories: EX - Extinct, EW - Extinct in the Wild, CR - Critically Endangered, EN - Endangered, VU - Vulnerable, LR/cd - Lower Risk/conservation dependent, NT - Near Threatened (includes LR/nt - Lower Risk/near threatened), DD - Data Deficient, LC – Least Concern (includes LR/lc - Lower Risk, least concern), NE – Not Evaluated.

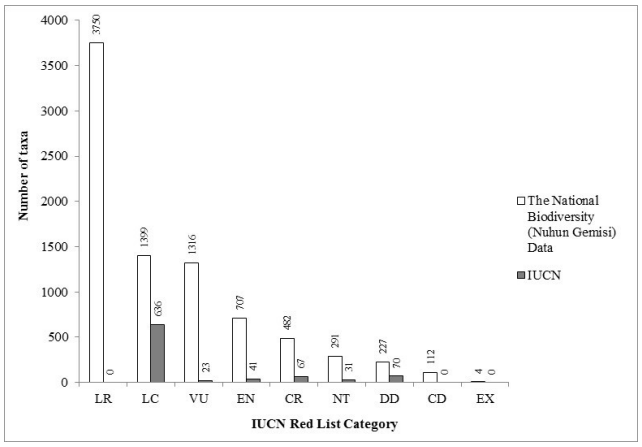

Figure 1 Comparison of The IUCN and The National Biodiversity (Noah's Ark) Data

The comparison of the IUCN and the National Biodiversity (Noah's Ark) Data for animals is given in Table 2 and demonstrated in Figure 2. The IUCN contains 1879 animal species, whereas the National Biodiversity (Noah's Ark) Database 1285.

Table 2
The comparison of The IUCN and The National Biodiversity (Noah's Ark) Data of Animals in Turkey

	IUCN	**The National Biodiversity (Noah's Ark) Data**
EX *	4	1
EW *	0	0
CR *	68	49
EN *	104	62
VU *	124	89
NT *	104	103
DD *	191	24
LC *	1.284	887
CD *	0	1
NE *	0	69
Total	**1879**	**1285**

*IUCN Red List Categories: EX - Extinct, EW - Extinct in the Wild, CR - Critically Endangered, EN - Endangered, VU - Vulnerable, LR/cd - Lower Risk/conservation dependent, NT - Near Threatened (includes LR/nt - Lower Risk/near threatened), DD - Data Deficient, LC – Least Concern (includes LR/lc - Lower Risk, least concern), NE – Not Evaluated.

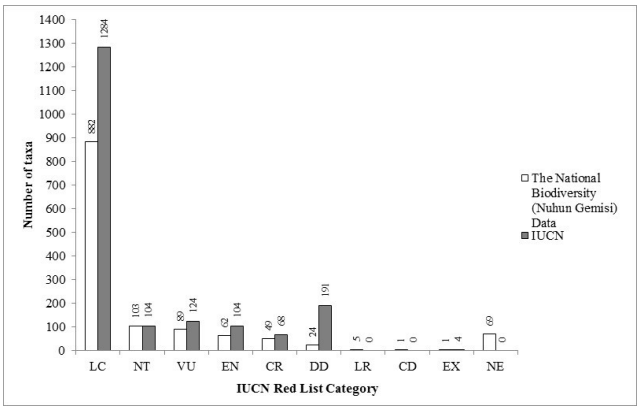

Figure 2 Comparison of The IUCN and The National Biodiversity (Noah's Ark) Data of animal species in Turkey

4. DISCUSSION

The results showed that differences between the IUCN and The National Biodiversity (Noah's Ark) Data exist. There are two main explanations for these differences. One possible explanation is that the plant species in Turkey are not entirely evaluated. Also, not all species are listed in the IUCN. Therefore, a project to determine and assess the plant species and the red list categories continue, which is with the IUCN in cooperation. After the project, plant species in Turkey will be thoroughly searched and evaluated in the IUCN Red List. Another possible explanation is that the fauna data of the IUCN involves marine species, which may cause the differences between the databases. Another possible explanation is that according to taxonomic studies, some species were combined or separated. Taken together, this offers a novel perspective on the evaluation and status of biodiversity in Turkey.

It is important to eliminate these differences for all living species by conducting extensive studies. The results to be made compatible with each of the two databases are extremely important due to ensure the conservation and sustainability of biological diversity. Therefore projects carried out and will be carried out in collaboration with the IUCN will assure the accurate evaluation of the species in Turkey.

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The Declaration of Conflict of Interest/ Common Interest

No conflict of interest or common interest has been declared by the authors.

Authors' Contribution

All authors have contributed in analyzing and writing of the manuscript equally.

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The authors declare that this document does not require an ethics committee approval or any special permission.

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REFERENCES

[1] J.-C. Vié, C. Hilton-Taylor, C. Pollock, J. Ragle, J. Smart, S. N. Stuart, and R. Tong, "The IUCN Red List: a key conservation tool" The 2008 Review of The IUCN Red List of Threatened Species. IUCN Gland, Switzerland, 2008.

[2] P. C. De Grammont and A. D. Cuarón, "An evaluation of threatened species categorization systems used on the American continent" Conservation Biology vol. 20, no. 1, pp. 14-27, 2006.

[3] J. Lamoreux, H. R. Akçakaya, L. Bennun, N. J. Collar, L. Boitani, D. Brackett, A. Brautigam, T. M. Brooks, G. A. B. Fonseca, and R. A. Mittermeier, "Value of the IUCN Red List" Trends in Ecology & Evolution vol. 18, pp. 214-215, 2003.

[4] G. M. Mace, N. J. Collar, K. J. Gaston, C. Hilton Taylor, H. R. Akçakaya, N. Leader-Williams, E. J. Milner-Gulland, and S. N. Stuart, "Quantification of extinction risk: IUCN's system for classifying threatened species" Conservation Biology vol. 22, no. 6, pp. 1424-1442, 2008.

[5] A. S. L. Rodrigues, J. D. Pilgrim, J. F. Lamoreux, M. Hoffmann, and T. M. Brooks, "The value of the IUCN Red List for conservation" Trends in Ecology and Evolution, vol. 21, no. 2, pp. 71-76, 2006.

[6] Anonymous, "Biyolojik Çeşitlilik 2018 Yılı Envanter Raporu" T.C. Tarım ve Orman Bakanlığı Doğa Koruma ve Milli Parklar Genel Müdürlüğü, Ankara, 2008.

[7] Anonymous, http://www.nuhungemisi.gov.tr/Projects/Ubenis. © 2018 T.C. Tarım ve Orman Bakanlığı Bilgi İşlem Dairesi Başkanlığı, Ankara, 2019.

[8] IUCN 2019. The IUCN Red List of Threatened Species. Version 2019-3. http://www.iucnredlist.org. Downloaded on 10 December 2019.