

Is ethology a neglected field within the scientific community in Türkiye?

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The term “ethology,” the scientific study of animal behavior, was coined by the French zoologist Isidore Geoffroy Saint-Hilaire in the nineteenth century, based on *ethos* meaning “character” and *logia* meaning “the study of,” both from the Greek (Jaynes, 1969). The popularization of the term was propagated by the American myrmecologist Wheeler in 1902 (see Sleight, 2007). The European school of ethology found its roots, in addition to other contributors, largely with Nikolaas Tinbergen (1907–1988), Konrad Lorenz (1903–1989), and Karl von Frisch (1886–1982), who was awarded the Nobel Prize for Physiology or Medicine in 1973. This event was a milestone for other later researchers who were greatly motivated by it, and data on different aspects of animal behavior on a wide variety of taxa started to accumulate with their studies. Readers are kindly asked to follow Fericean et al. (2015) for a plain and clear history of ethology in general and Taborsky (2010) for ethology in Europe in particular.

It is widely known that scientists who immigrated to Türkiye from Germany in the 1930s influenced the scientific advancement of the country with their contributions to the structuring of universities, providing new books or translations of existing ones, implementing new techniques, and contributing scientific journals (Ertan, 2016; Namal, 2012). I have no data to present the specific weight of any discipline relative to others in a temporal or spatial pattern throughout the country for the last century, but I wish to address the current state of ethology in Türkiye as a researcher in this field. The study by Gunay et al. (2013) provides important data

about the progress of some basic science disciplines in Turkish universities for the period from 2007 to 2013. Among these, and in the same fluctuating manner as others, the number of active biology departments was 81 in 2007, reached 131 in 2010, but followed a gradual decline to 53 in 2013. This dramatic decrease also implies a decrease in the number of students placed in these departments across the country. This small-scale data set led me to conclude logically that, if we accept all graduates as potential researcher candidates, then we lose almost half of our future generation of researchers from the global scientific community. This makes sense not only for figures playing active roles in scientific development in Türkiye but also for me, as an ethologist, with my ongoing concern about the current state and future of the field in the country. The field of animal behavior is currently introduced to university students mostly in the biology departments and veterinary faculties of some state and foundation universities under courses with different names, such as Animal Behavior, Behavioral Biology, and Animal Behavior and Welfare. At this point, despite the abovementioned decreasing trends, we still have the option to guide junior researchers, as potential seniors of the future, to specialize for ethology. However, the current available data gives, at least for me, a feeling of pessimism. A quick search in the database of Web of Science (WOS) covering the period from 1900 to 2025 with the search terms “ethology” in all fields and “Türkiye” in the address field revealed 25 published items that included the term “ethology” at least once within the body text.

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The number was 44 when the search term was “animal behavior”¹ for the same period. There are other platforms in addition to WOS, which will increase these numbers via studies published in various journals, books, etc. that they indexed, but I am sure, based on my personal experience for the last 25 years in the field that, although studies in the field are more than I presented here, ethology is still in its infancy compared to other fields. Several explanations may be put forward for this disquieting picture, all of which will be speculation if they are included here to draw the reader’s attention. I underline here the results of the influential study of Bueno-Guerra (2021), who analyzed the current state of ethology from the researchers’ perspective using a questionnaire to gather data about discipline names and concepts, species, Umwelt, technology, data, networking, and the impact of sociocultural and ecological factors. The researchers completing the questionnaire represented ($n = 98$) different continents, educational backgrounds, age groups, professions, and target organisms. It is possible to discuss the data obtained individually, but some important points seem to arise, which can also be applied to the field of ethology in Türkiye. One important outcome is that there is still no consensus on a denomination for the discipline, since the answers obtained from the participants when asked for the discipline name were, in descending order, animal behavior, animal cognition, comparative psychology, primatology, and behavioral ecology. The level of consensus about theoretical concepts was highest for the theory of evolution, followed by Tinbergen’s questions, associative learning, social learning, and so on. Can the theory of evolution be responsible for the minority of ethological studies in Türkiye? Several studies reported a poor acceptance of the theory of evolution in the country even among university students (Annaç & Bahçekapılı, 2012), biology teachers (Peker et al., 2010) and political and social circumstances, and religious influences have the potential to guide the public view on evolution (Burton, 2011), but I want to ignore any effect of it on ethology and find another scapegoat. The study by Bueno-Guerra (2021) seems to be a candidate for me to use. The responses of researchers in the study showed that “budget” was the main barrier to deploying more adequate technical devices currently in ethology. Similarly, participants were asked to score how much impact they attributed to different issues in ethology (Table 5 in the original study), and a high level of consensus appeared around a lack of funding.

At this point, I still cannot say “eureka” since I have no concrete data with which to blame funders for negligence of ethology in the country. If this were the case, then other disciplines would also be, at least in theory, expected to show a similar pattern. In Türkiye, the most powerful and generous source of scientific funds is the Scientific and Technological Council of Türkiye (TÜBİTAK), which offers a wide range of national and international research

funds for all disciplines. Researchers or research groups that meet the required criteria have the option to request funding for their studies, for which they will be evaluated scientifically. TÜBİTAK recently announced the list of projects that were awarded funding in the first call of 2025. The list includes 473 research topics, but lacks details. I therefore consulted the list for the first call of 2024, which included project titles in the announcement. An analysis of these titles revealed the direct involvement of two projects on rat behavior and one project on human behavior, amounting to 1.11% of the total 269 funded projects (TÜBİTAK, 2024). Are behavioral studies really that rare? Do they exist somewhere without a need for a fund, or is it really hard to attract funding for such a study?

Despite this pessimistic picture I have presented, a quick literature search will show that the case may not be as alarming as I described. The WOS is not the only source to consult for scientific data, and more studies (but still comparatively not at a satisfactory level) on animal behavior will be found on other platforms with Turkish researchers as authors and/or co-authors. Trakya University Journal of Natural Sciences (TJUNS) is one of the scientific platforms in Türkiye which also welcomes studies in the field of ethology. I searched the last 5-year archive of the journal and could classify two studies in this field, with either direct or indirect evidence. In one study, Selçuk et al. (2021) report data on the feeding behavior of the Long-eared Owl *Asio otus* L. based on pellet analysis (directly related to ethology), and in the second one, Şakacı and Camlitepe (2022) evaluated the vectoral role of mosquitoes in the central district of Edirne province, Türkiye (indirectly related to ethology). Two studies on mice and rats were published more recently in the journal, but they addressed hepatotoxicity and apoptosis, excluding behavioral approaches (Cinar et al., 2024; Cerkez kayabekir et al., 2025).

In short, we (and TJUNS) have an important mission to guide junior scientists in the field of ethology by encouraging them with more popular fields related to ethology, particularly neuroscience (Korkmaz & Küçükali, 2024) and deep learning (Fazzari et al., 2025). This amounts to a difficult process, because the priority areas listed by TÜBİTAK and by the Council of Higher Education of Türkiye include areas related to agriculture, the automotive industry, chemistry, climate change, the defense industry, digital technologies, drugs, electronics, energy, food, health, and tourism-related topics and excludes ethology. We should keep in mind that the path that the Nobel Prize of Tinbergen, Lorenz, and von Frisch opened is still full of questions to be addressed, which will contribute to the consolidation of the field globally, as well as in Türkiye, with new concepts, theories, methodologies, discoveries, and inventions.

1 If the term “behavior” is used alone as the search term, the number of published items exceeds 80,000, but a considerable amount of time is needed to make a clear distinction for those related to animal behavior among others. I, therefore, only considered ethology and animal behavior here. In this context, 891 items are listed with the subject category Behavioral Sciences, 763 with veterinary sciences, 260 with psychology, 244 with biology, 233 with Zoology, and 209 with ecology, all of which may be related to animal behavior, making up 3.25% of the total.

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