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State of knowledge on the Diet of the Barn owl *Tyto alba* (Scopoli, 1769) in Sicily, Central Mediterranean (Italy): a Review

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Abstract

This paper reviews the current state of knowledge regarding the diet of the Barn owl, *Tyto alba* (Scopoli, 1769), in Sicily through a synthesis and comparative analysis of previous studies conducted on the island. The available evidence indicates that the Barn owl in Sicily primarily preys on small mammals, with a clear preference for *Microtus nebrodensis* (Minà-Palumbo, 1868). However, the availability of this rodent varies according to habitat and season, resulting in both seasonal and habitat-related variations in diet and a broader trophic spectrum that includes other small mammals and additional taxa. This dietary flexibility highlights the opportunistic feeding strategy of the species and its ability to adapt to the environmental heterogeneity of the Sicilian landscape. The review also emphasizes the need for further investigations to update the current knowledge and address the remaining gaps, particularly in areas of the island that remain poorly studied.

Key words: Barn owl, diet, *Microtus nebrodensis*, seasonal and environmental variation in diet, Sicily, small mammals, *Tyto alba*

Introduction

The Barn owl, *Tyto alba* (Scopoli, 1769) is widely distributed throughout Sicily, where the abundance of agricultural landscapes, open habitats, and Mediterranean vegetation provides suitable ecological conditions for the species. As one of the island's principal predators of small mammals, the species holds considerable ecological relevance, given its specialisation on this prey taxa, which exerts a strong influence on ecosystem dynamics (Siracusa et al., 2022). Pellet analysis is considered one of the most effective and commonly used methods for small mammal communities, largely due to the ease of collecting the material, as noted by Contoli (1978) and Heisler et al. (2016). This method is particularly valuable for understanding the diet of species like the Barn owl, which primarily preys on small mammals. In Sicily, these investigations are particularly important owing to the island's high level of endemism and the presence of distinctive ecological communities that differ from those of mainland Italy. This paper provides an updated synthesis of the available literature on the diet of the Barn owl in Sicily by comparing previous studies conducted in different habitats and seasons. Particular attention is given to patterns of prey selection, seasonal variation, habitat-related differences, and the ecological significance of dietary specialisation within the Sicilian context.

Material and Methods

We reviewed seven scientific papers investigating Barn owl pellets collected in Sicily, published between 1978 and 2018, covering different geographical areas of the island. The geographic distribution of the studies was represented through a map of Sicily (Fig. 1) created in R (ggplot2 package), showing the Barn owl's range and the study sites,

colour-coded according to their geographic location. Site coordinates were obtained from the original studies or, when unavailable, estimated from the locality reported. Most publications were retrieved from academic databases and repositories, including Google Scholar, Academia.edu, and ResearchGate, using the keywords "*Tyto alba*," "Barn owl," "Sicily," "diet," and "pellet analysis" in both English and Italian. In several cases, copies of the publications were obtained directly from the authors. The pellet analysis method described in nearly all reviewed studies followed the small mammal identification procedures proposed by Toshi and Lanza (1959), Toshi (1965), Yalden (1977), and Contoli (1980). The only exception was Bellia (2009), in which the analytical methodology was not explicitly described.

Because the remaining studies employed comparable prey-identification protocols, their results could be directly compared. All of these studies reported the numerical percentage (PNi) of prey items, whereas most also provided the percentage biomass (PBi) and the frequency of occurrence (PFi).

The results reported by Bellia et al. (2009) were included primarily to compare dietary composition in highly anthropogenic rural environments, despite the use of a different identification approach.

Results

A preliminary overview of the Barn owl's diet in Sicily was provided by Massa and Catalisano (1987), who performed a new analysis of 1,500 pellets collected from various locations in Sicily for previous studies.

They state a food daily intake around 80-85 g and a feeding regime mainly based on small mammals, in particular 7 species: Sicilian pine vole *Microtus nebrodensis* (Minà-Palumbo, 1868), Wood mouse *Apodemus sylvaticus* (Linnaeus, 1758), House mouse *Mus domesticus* Schwartz and Schwartz, 1943, Black rat *Rattus rattus* (Linnaeus, 1758), Brown rat *Rattus norvegicus*, (Berkenhovut, 1769), Sicilian shrew *Crocidura sicula* Miller, 1900, and the Etruscan shrew *Suncus etruscus* (Savi, 1822).

Among these prey species, the Sicilian pine vole represents by far the most significant trophic resource, accounting for 38.5% of prey items and 44.5% of total prey biomass. These values indicate a marked local specialization on this endemic rodent, making it one of the most important prey species for the Barn owl throughout the Mediterranean region (Catalisano and Massa, 1987).

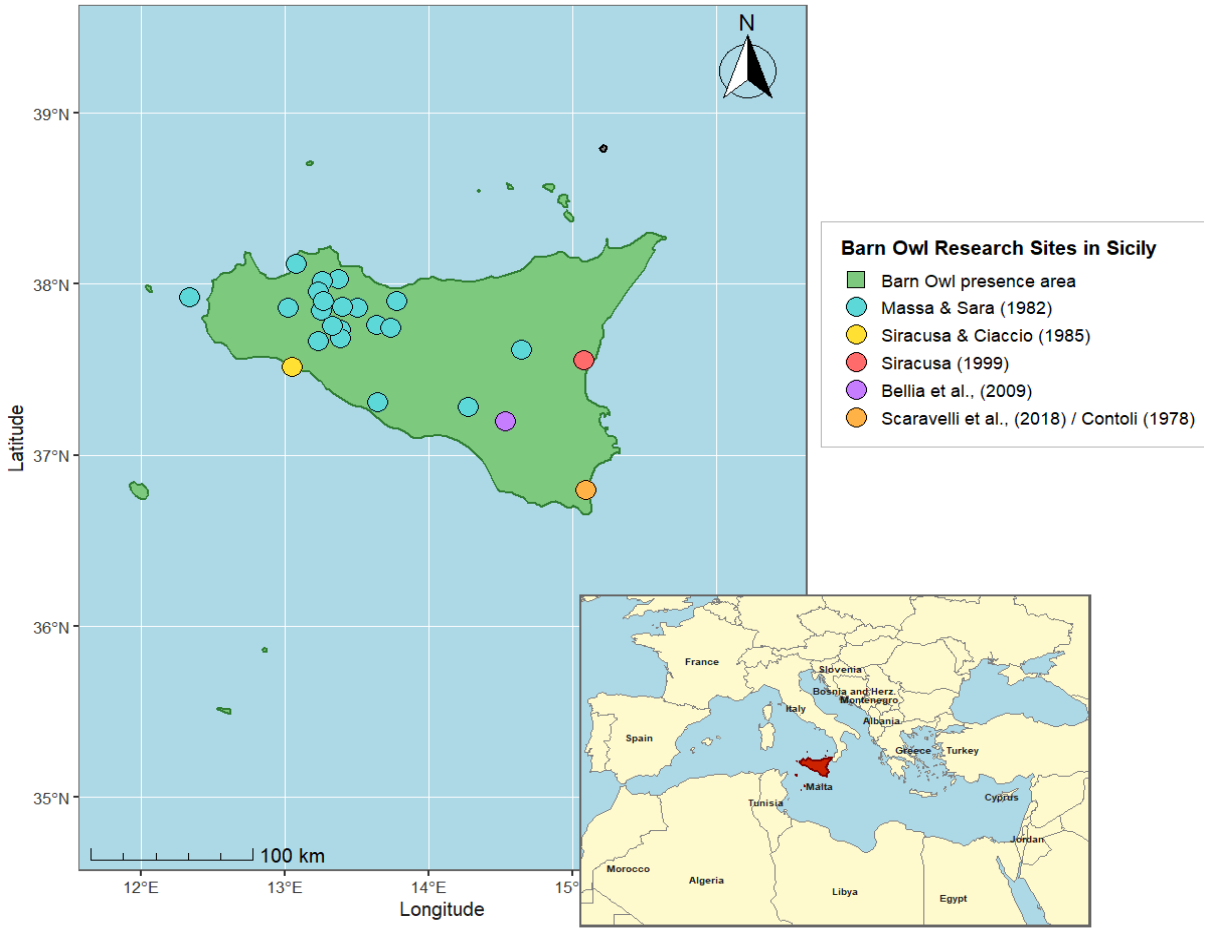

Figure 1: Map of the reviewed literature sources study areas.

The Wood mouse constitutes the second most important prey species, contributing 17.83% of the numerical prey composition and 25.8% of total biomass. Due to its ecological significance, measurements of mandibles recovered from pellets were taken to determine which age class of the Sicilian pine vole is most frequently preyed upon.

According to the classification outlined in the study, the age classes are divided into four categories: juveniles, subadults, adults, and old adults. All these classes are preyed upon by the Barn owl throughout the year, with a general decline in predation observed between February and April. The adults and subadults are hunted most intensively, particularly in June and December, respectively.

The lower numerical percentage of Sicilian pine voles found in the pellets during February and April allows for a distinction in the Barn owl's diet in Sicily, which can be divided into two different structures. For most of the year, voles are the primary prey, accompanied by five other small mammal species. However, during the two-month period, the Wood mouse becomes the main food source, followed by the House mouse and the Sicilian shrew. This dietary shift is likely linked to the Barn owl's increased difficulty in hunting voles, possibly due to taller grass and changes in the activity levels of these small mammals within their burrows, coinciding with the reproductive season (Catalisano and Massa, 1987).

Seasonal variation in the Barn owl's diet was investigated in detail by Siracusa and Ciaccio (1985), who analysed 891 prey items recovered from 340 pellets collected from a nesting cavity surrounded by agricultural land in the province of Agrigento. For analytical purposes, the authors divided the data into two seasonal groups: spring–summer and autumn–winter.

During the spring–summer period, the Sicilian pine vole dominated the diet, accounting for 74% of prey items, with a seasonal maximum of 85% in late spring and a biomass contribution of 62.9%. In contrast, both the numerical percentage and biomass of this species declined during autumn and winter. Numerical abundance decreased to 51% in autumn and reached its annual minimum of 43% in winter, while biomass declined from 39.1% in autumn to 30.2% during winter.

As the importance of the Sicilian pine vole decreased during autumn and winter, the contribution of alternative prey increased accordingly. The Wood mouse and the House mouse became substantially more important, together contributing 26.3% of prey biomass during winter. Because these rodents remain active throughout the colder months, they become more readily available to Barn owls than the less active Sicilian pine vole.Species of the genus *Rattus* exhibited a similar seasonal trend. However, unlike the Wood mouse and House mouse, rats became particularly important during summer, ranking as the third most significant prey group in terms of both numerical abundance and biomass.

Of particular interest is the case of the Garden dormouse *Eliomys quercinus* (Linneaus, 1766). Although it is considered a rare prey for the Barn owl, this species has been found in small percentages throughout all seasons, except for winter. During the summer, it ranks as the second most important prey, following the Sicilian pine vole (Siracusa and Ciaccio, 1985).

This analysis also includes remains of passerines, amphibians, arthropods, and reptiles. Although the first three groups have a marginal impact on the overall composition of the diet, they exhibit a seasonal trend similar to that of rodents. In contrast, reptiles were only found during the summer months, constituting 0.6%, which suggests they play a minimal and likely incidental role in the diet.

These data indicate an inverse relationship between the numerical percentage of the Sicilian pine vole and other rodent species, suggesting a seasonal dynamic in the availability and consumption of different prey (Fig. 2).

The Barn owl, having a widespread presence across the island, thrives in environments that range in altitude and habitat. This extensive distribution necessarily drives interactions with diverse environmental contexts, significantly impacting the distribution and occurrence of the Sicilian pine vole.

Depending on environmental conditions, the Barn owl tends to broaden its diet by incorporating alternative prey, with the importance of each prey type varying by habitat. This dietary aspect is thoroughly examined in the study by Massa and Sarà (1982), which analyses 5,214 prey items.

This dietary aspect can be found in other research as well; in the available literature, researchers have compared five types of habitats: rural, woodland, suburban, urban, and wetland. Although these do not encompass the full range of environmental variation across the species' regional distribution.

To facilitate comparison among studies, the principal dietary indices reported in the literature are summarized in Table 1, including the numerical percentage (PNi), percentage biomass (PBi), and frequency of occurrence (PFi) for the most important prey taxa. Two exceptions should be noted. Contoli (1978) did not report frequency-of-occurrence values, whereas Scaravelli et al. (2018) presented only numerical percentage data.

Information for rural, woodland, and suburban habitats was derived primarily from Massa and Sarà (1982), whereas additional data for rural habitats were obtained from Bellia et al. (2009). Urban data originated from Siracusa (1999), while wetland habitats were investigated by Contoli (1978) and subsequently re-examined by Scaravelli et al. (2018) in the Vendicari Nature Reserve.

Within rural habitat analysed by Massa and Sarà (1982), a total of 2,970 prey items were collected from 1,086 pellets across 14 different sites in inland Sicily, which are primarily used for cereal cultivation, along with some almond and olive groves.

Table 1: Values index of the different types of prey across different habitat types.: Sicilian pine vole, *Microtus nebrodensis*; Wood mouse, *Apodemus sylvaticus*; House mouse, *Mus domesticus*; *Rattus* species, *Rattus* spp.; Sicilian shrew, *Crocidura sicula*; Etruscan shrew, *Suncus etruscus*; Aves, Birds; NA Data not available; PNi Numerical percentage; PBi; Biomass percentage; PFi Frequency percentage.

Source	Massa and Sarà (1982)									Siracusa (1999)			Contoli (1978)			Scaravelli et al. (2018)		
Habitat	Rural			Woodland			Suburban			Urban			Wetland					
Index	PNi	PBi	PFi	PNi	PBi	PFi	PNi	PBi	PFi	PNi	PBi	PFi	PNi	PBi	PFi	PNi	PBi	PFi
Microtus nebrodensis	51.5	45.4	74.6	41.5	46.7	69.0	23.2	14.5	39.5	23.6	27.6	5.8	18.2	10.0	NA	10.7	NA	NA
Apodemus sylvaticus	19.7	33.0	40.2	10.0	24.1	29.7	23.8	27.1	36.8	2.8	3.5	5.1	10.7	18.7	NA	3.2	NA	NA
Mus domesticus	8.3	7.4	22.2	3.0	3.4	9.7	25.1	15.2	43.8	27.4	19.2	40.7	36.8	33.5	NA	49.5	NA	NA
Rattus spp.	0.3	1.8	1.5	0	0	0	7.5	29.3	15.5	11.3	20.7	12.0	3.2	26.7	NA	12.2	NA	NA
Crocidura sicula	12.8	6.9	27.6	18.2	12.7	36.0	12.2	4.2	20.0	0	0	0	5.3	1.8	NA	2.4	NA	NA
Suncus etruscus	1.0	0.2	2.6	2.8	0.5	9.9	2.2	0.3	4.9	0	0	0	13.6	1.3	NA	5.6	NA	NA
Aves	3.3	5.0	7.3	6.6	12.3	17.2	9.0	11.2	17.3	28.3	25.6	35.6	NA	NA	NA	10.9	NA	NA

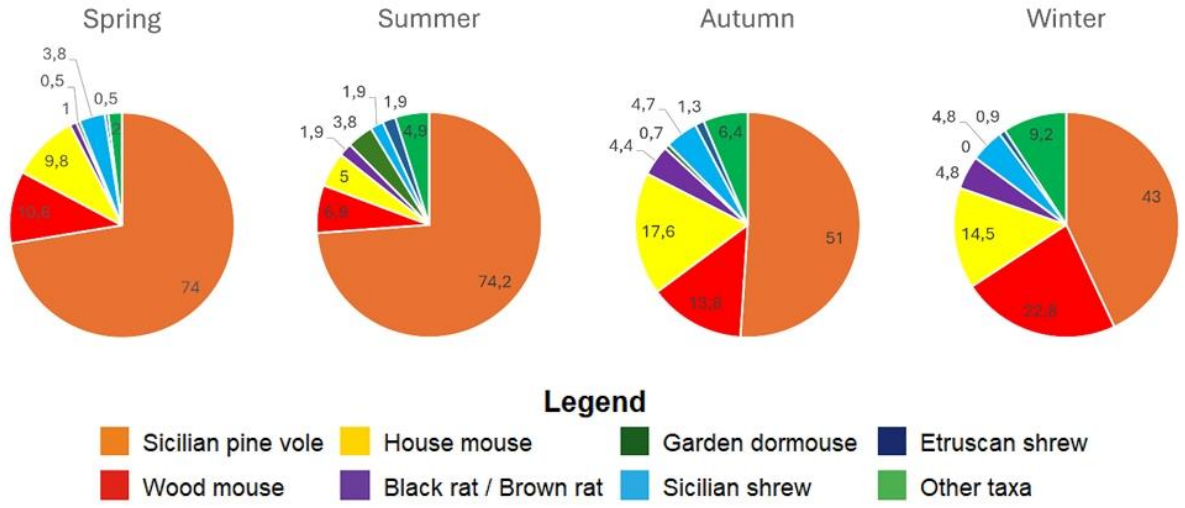

Figure 2: Pie charts showing the numerical percentage in pellets, one for each season of the year (spring, summer, autumn, winter). Data from Siracusa and Ciaccio (1985) study.

The Sicilian pine vole was clearly identified as the dominant prey species, representing 51.5% of prey items, 45.4% of total prey biomass, and occurring in 74.6% of pellets. These values confirm its overwhelming trophic importance within traditional agricultural landscapes.

The Wood mouse ranked second in dietary importance. Although its numerical proportion was considerably lower (PNi = 19.7%), it contributed substantially to prey biomass (PBi = 33.0%) and occurred frequently in pellets (PFi = 40.2%), emphasising its importance as a complementary prey species.

Among the remaining prey, the Sicilian shrew and the House mouse were also significant dietary components. The Sicilian shrew exhibited higher numerical abundance and frequency of occurrence than the House mouse, whereas the latter contributed more substantially to prey biomass because of its larger body size. Together, these species represent important secondary prey within rural ecosystems.

The analysis conducted by Bellia et al. (2009) highlights distinct patterns in rural contexts, which are primarily characterised by monocultural fields. This study classified the sites into four different environments: cereal cropland, artichoke fields, wetlands, and a mosaic of cultivated and uncultivated land. The examination of pellets revealed five prey species; each associated with one or more of these environments. The Sicilian pine vole was most frequently found in artichoke fields, while the Wood mouse, Sicilian shrew, and House mouse were observed in cereal cropland. The Etruscan shrew was primarily linked to the mosaic of cultivated and uncultivated land. Additionally, the Black rat was recorded across all four environments, with a higher frequency noted in the wetland area.

In woodland habitats, Massa and Sarà (1982) examined 1,778 prey items recovered from 432 pellets collected at ten sites characterised by mixed coppice woodland interspersed with grasslands, pastures, and forest clearings. The Sicilian pine vole remained the dominant prey species, accounting for 41.5% of prey items, 46.7% of prey biomass, and occurring in 69.0% of pellets. The Sicilian shrew ranked as the second most important prey species based on numerical abundance (PNI = 18.2%) and frequency of occurrence (PFi = 36.0%). However, although the Wood mouse occurred less frequently, it contributed almost twice the biomass of the Sicilian shrew, highlighting its greater energetic value as prey. Together, the Wood mouse and the Sicilian shrew constitute the principal alternative prey when Sicilian pine vole availability declines. Passerine birds, particularly fringillids, represented a secondary dietary component. Although their numerical proportion remained relatively low (PNi = 5.3 %), they contributed appreciably to prey biomass (PBi = 11.3%) and occurred regularly in pellets (PFi = 16.2). A distinctive feature of woodland habitats was the relatively frequent occurrence of arthropods, especially orthopterans and scarabaeid beetles. Despite their negligible biomass contribution (PBi = 0.8 %), their relatively high numerical abundance (PNi = 19.3%) and frequency (PFi = 31.9 %) indicate that they represent a regular, albeit minor, component of the Barn owl's diet within woodland ecosystems.

A different dietary composition was observed in suburban environments. Massa and Sarà (1982) analysed 466 prey items recovered from 220 pellets collected at six sites located near small and medium-sized towns. Unlike rural and woodland habitats, the House mouse represented the most frequently consumed prey, exhibiting the highest numerical percentage (PNi = 25.1%) and frequency of occurrence (PFi = 43.8%) among all prey taxa. The Wood mouse occupied a comparable position in terms of abundance but contributed proportionally more biomass (PBi = 15.2%), emphasising its greater trophic importance despite its relatively lower frequency (PFi = 36.8%). The Sicilian pine vole became less important in suburban habitats than in rural environments, whereas species of the genus *Rattus* showed a marked increase in biomass contribution (PBi = 29.3%) owing to their larger body size. Passerine birds, particularly species of the genus *Passer*, also represented an important dietary component, contributing substantially to overall prey biomass.

Urban habitats exhibited the greatest departure from the dietary pattern observed in rural ecosystems. Siracusa (1999) analysed 106 prey items recovered from 59 pellets collected within an urban landscape in the province of Catania. Birds represented the most important prey group in terms of numerical abundance (PNi = 28.3), with the Italian Sparrow *Passer italiae* (Vieillot, 1817) accounting for more than half of all avian prey. The House mouse ranked second and exhibited the highest frequency of occurrence (PFi = 40.7%) among all prey taxa. Although Black rats occurred less frequently (PFi =12%), their relatively large body size resulted in a disproportionately high biomass contribution (PBi = 20.7), increasing their trophic importance. In contrast, the Sicilian pine vole contributed comparatively little to the urban diet, its numerical percentage (PNi = 23.6%) is comparable to that of birds and House mice; however, its frequency of occurrence in pellets is very low (PFi = 5.8%). The Moorish Gecko *Tarentola mauritanica* (Linnaeus, 1758) was also recorded, although in low numbers, suggesting only occasional predation on reptiles within urban environments.

Wetland habitats have been investigated in two independent studies separated by approximately four decades.

The earlier study conducted by Contoli (1978) identified the House mouse as the dominant prey species, contributing the highest numerical percentage (PNi = 36.8) and biomass (PBi =33.5). The Sicilian pine vole ranked second, followed by the Wood mouse and the Etruscan shrew. Bats (Chiroptera) also represented a noteworthy component of the diet, particularly the Common pipistrelle (*Pipistrellus pipistrellus* Schreber, 1774) and the Kuhl's Pipistrelle (*Pipistrellus kuhlii* Kuhl, 1817).

A subsequent study by Scaravelli et al. (2018) revealed a similar overall dietary structure. The House mouse again constituted the principal prey species, making up 49.5% of the diet, followed by the Black rat at 12.2%, the Sicilian pine vole at 10.7%, and the Wood mouse at 3.2%. Together, these four accounted for a total of 75.6% of the diet. Other prey included the Etruscan shrew at 5.6% and the Sicilian shrew at 2.4%. Birds contributed 10.9%, insects 2.8%, reptiles 1.7%, amphibians 0.6%, and bats 0.4%.

Discussion

The present review demonstrates that the Sicilian pine vole is the principal prey species of the Barn owl throughout Sicily, occurring consistently as the dominant dietary component across most habitats and seasons. Its frequent occurrence in pellets and substantial contribution to prey biomass highlight its pivotal role in the trophic ecology of the species.

Seasonal fluctuations in the abundance of the Sicilian pine vole do not appear to reduce the Barn owl's overall food intake. Instead, the species compensates by broadening its prey spectrum, thereby maintaining a relatively stable biomass intake throughout the year. This pattern clearly illustrates the Barn owl's remarkable dietary plasticity and opportunistic foraging strategy.

According to Siracusa and Ciaccio (1985), rodents account for approximately 85–95% of the prey remains identified in pellets throughout the year,

although their relative contribution declines slightly during winter, when the energetic demands of the Barn owl are lower. During this period, the Wood mouse, House mouse, and species of the genus *Rattus* become increasingly important because they remain active throughout the colder months. Consequently, these species effectively compensate for the seasonal decline in the availability of the Sicilian pine vole.

Dietary diversification is not restricted to periods of reduced vole abundance. Even during summer, when the Sicilian pine vole reaches its highest abundance, Barn owls continue to exploit alternative prey. In particular, the Garden dormouse and species of the genus *Rattus* become proportionally more important, especially in terms of prey biomass.

This pattern is likely associated with the increased energetic requirements of reproduction. Larger prey species provide substantially greater energetic returns than the smaller rodents that dominate the remainder of the diet. Consequently, incorporating larger prey during the breeding season may represent an energetically efficient foraging strategy that maximises the balance between energy expenditure and energy gain.

Although seasonal variation clearly influences prey composition, habitat characteristics appear to exert an even stronger effect on dietary composition. Across the studies reviewed, the relative importance of each prey species varied consistently according to habitat type, reflecting differences in prey availability and local environmental conditions.

These findings are consistent with the principles of Optimal Foraging Model, which suggests that predators expand their trophic niche when preferred prey are scarce and narrow it when such prey is abundant (Massa and Sarà, 1982). In cases where preferred prey is abundant, this strategy reduces search time and enables predators to select prey that require lower energy expenditure (Massa and Sarà, 1982). Within Sicily, rural habitats represent the environment in which this strategy is most evident. The high abundance of the Sicilian pine vole enables Barn owls to specialise on their preferred prey while minimising foraging effort.

Conversely, studies conducted by Bellia et al. (2009) suggest that increasing agricultural intensification and habitat simplification may favour more disturbance-tolerant species, particularly the Black rat. In habitats where the Sicilian pine vole becomes less abundant or less accessible, Barn owls respond by increasing the diversity of prey consumed.

This pattern is particularly evident in woodland, suburban, and urban environments, where the contribution of the Sicilian pine vole declines progressively and is replaced by a broader spectrum of mammals, birds, reptiles, and other vertebrates. Such flexibility further emphasises the Barn owl's ability to adapt to contrasting ecological conditions across Sicily.

Dietary specialisation in Sicily compared with Sardinia

Among Mediterranean islands, Sicily appears to exhibit the highest degree of trophic specialisation in the Barn owl, largely because of the dominant role of the endemic Sicilian pine vole in its diet. By contrast, studies conducted in Sardinia indicate a broader dietary spectrum, although small mammals remain the principal prey group.

This pattern is consistent with the observations of Contoli (1987), who suggested that the trophic structure of Barn owl populations in Sicily is more closely related to that of Sardinia than to Corsica, despite the stronger faunal affinities between the latter two islands.

Unlike Sicily, Sardinia lacks native cricetid rodents, a factor that may partly explain the greater dietary diversity observed in Barn owl populations on that island. Two studies provide the principal evidence for this comparison: Torre (1983), which examined seasonal dietary variation, and Di Russo (1987), which focused on prey composition during a single sampling period.

Although Di Russo (1987) reported a predominance of the Wood mouse, pellet collection was restricted to May, coinciding with the seasonal peak in Wood mouse consumption described by Torre (1983). Consequently, the apparent discrepancy between the two studies is likely explained by differences in sampling period rather than by genuine ecological differences.

Overall, the available evidence indicates that Barn owls in Sardinia exploit a more diverse prey base than those in Sicily. Nevertheless, the presence of cricetid rodents alone cannot fully explain the degree of dietary specialisation, which is probably influenced by multiple ecological factors acting simultaneously.

Habitat-specific foraging patterns

Beyond differences in prey availability, pellet analyses also provide valuable insights into habitat-specific foraging behavior.

In woodland habitats, the relatively frequent occurrence of arthropods, particularly orthopterans and scarabaeid beetles, suggests that Barn owls frequently hunt along woodland edges and adjacent open habitats rather than within forests (Massa and Sarà, 1982). This interpretation is supported by the simultaneous abundance of Sicilian pine voles and insectivorous mammals in the diet.

Urban sites exhibit a markedly different trophic structure compared with suburban environments. Massa and Sarà (1982) report that the Barn owl coexists with the Tawny owl *Strix aluco* Linneaus 1758, which preys on Rats, comprising 31% of its diet. This suggests that, without competition in

anthropogenic areas, the Barn owl might prey more freely on these species.

Italian sparrow emerges as the bird species of greatest dietary importance in urban habitats; this probably reflects the predictable availability of communal roosting sites within urban landscapes. Wetland habitats display yet another distinctive dietary pattern, shaped by the exceptional environmental heterogeneity of these ecosystems and relatively low levels of human activity. While the House mouse remains the dominant prey, the diet also includes the Black rat, the Sicilian pine vole, birds, bats, amphibians, reptiles, and other insectivorous mammals.

An interesting observation is the higher incidence of the Etruscan shrew compared to the Sicilian shrew, suggesting that the former prefers environments with greater structural complexity. A further point of interest is that while birds do not constitute a major part of the diet, they still contribute to the overall composition. Probably, this group provides an additional food resource when rodent availability is reduced by dense wetland vegetation, which is rich in nesting birds and serves as an important stopover site during migration (Scaravelli et al., 2018).

Temporal changes in diet

Comparison of studies conducted in the Vendicari Nature Reserve approximately forty years apart suggests that the Barn owl's diet has changed over time. The earlier study reported the regular occurrence of bats, whereas birds were absent. In contrast, the more recent investigation documented birds but recorded very few bats. Although these differences may partly reflect individual hunting preferences, they could also indicate broader ecological changes within the wetland ecosystem. Furthermore, the proportion of the Etruscan shrew in the Barn owl's diet has changed significantly since the earlier study, which indicated it was a more heavily preyed upon species at that time. These differences, related to two taxa that are well known for their sensitivity to environmental changes; this may reflect increasing habitat simplification or anthropogenic disturbance within the Vendicari landscape.

Although additional long-term studies are required before firm conclusions can be drawn, these observations suggest that Barn owl pellets may provide a valuable tool for monitoring ecological change over time.

Conclusion

The studies reviewed clearly demonstrate that the Barn owl in Sicily is a highly adaptable predator whose diet is strongly influenced by both seasonal and habitat-related variation in prey availability. Although the Sicilian pine vole consistently represents the principal prey species, the Barn owl readily broadens its trophic niche by exploiting a wide range of alternative prey whenever the availability of this preferred resource declines.

This dietary flexibility reflects the species' opportunistic foraging strategy and its remarkable ability to respond to the ecological heterogeneity of the Sicilian landscape. Seasonal shifts in prey composition, together with differences among habitat types, highlight the close relationship between prey availability and dietary composition.

The present review also identifies several important gaps in current knowledge. First, a considerable amount of potentially valuable information remains unavailable because it exists only in grey literature or unpublished sources. Second, many existing studies are outdated; over half of them were conducted thirty to forty years ago. Research by Milana et al. (2018) indicates that the Barn owl's diet in Italy has changed significantly over the past four decades. A greater variability in diet was observed in the 1970s, potentially linked to increased afforestation. In contrast, the diet has become more simplified in subsequent years, likely due to landscape homogenization resulting from agricultural intensification and the use of pesticides and other contaminants. Therefore, updated research is necessary to determine whether these trends apply to Sicily as well, especially given the comparisons made between the two studies conducted at the Vendicari site.

Finally, important geographical gaps remain, particularly in eastern Sicily, northern Sicily, and the surrounding satellite islands, where dietary information is still scarce (although Sarà and Zanca (1988) address this topic, they do so in a broad sense, treating the islands as a single sample). Future studies should prioritise these poorly investigated regions while adopting standardised sampling and analytical methods to facilitate comparisons among localities and through time.

Overall, continued monitoring of Barn owl diet through pellet analysis will not only improve our understanding of the species' trophic ecology but will also provide valuable information on changes in small mammal communities and ecosystem dynamics across Sicily.

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We dedicate this work to the memory of Longino Contoli, a pioneer of theriological studies.

Author contributions

Both authors contributed to the literature search. AM was responsible for the data analysis and comparison, while MS, as co-supervisor, guided and oversaw the overall structure of the article, contributing critically to its revision.

Conflicts of interest

The authors declare that there are no conflicting issues related to this review article.

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