Survey of amphibian breeding sites in the Vallinfreda Municipal Area: a Citizen Science contribution to wildlife conservation.

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Survey of amphibian breeding sites in the Vallinfreda Municipal Area: a Citizen Science contribution to wildlife conservation.

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GENERAL INFORMATION

Species name: *Salamandrina perspicillata*, *Triturus carnifex*, *Lissotriton vulgaris*, *Bufo bufo*, *Hyla intermedia*, *Rana dalmatina*, *Rana italica* and *Pelophylax sp.*

Geographic area: Vallinfreda municipality: 1.672 ha

Period: February 2025 - August 2025

Type of data: Occurrences and environmental parameters

Reference to the dataset: Use your preferred repository (e.g., figshare, dryad) and add the full citation including DOI. Please note that Reviewers must have access to the dataset.

ABSTRACT

Data Descriptor. The dataset contains original occurrence and environmental data for all known potentially suitable amphibian breeding sites within the Vallinfreda municipal area. Monitoring activities were conducted from February to August 2025 and covered 44 localities. Amphibian presence or absence was confirmed after repeated visits to each site across different seasons. This approach enabled the observation of individuals at various developmental stages, facilitating species identification without handling any animals. For each locality, the potential breeding site was confirmed when at least one amphibian species was observed at any developmental stage.

Environmental data were collected as the relative percentage of land use composition (streets, urban areas, grazing land, shrubs, farming lands, mixed forests, reforestation, rushes and reeds) within a 100 m radius of each site. The percentage of sun exposure, and, when applicable, water body volume were also included. The project was fully funded by the Vallinfreda Pro Loco as part of a broader citizen science initiative aimed at promoting environmental education, scientific awareness, and the conservation of local biodiversity.

METHODOLOGY

The monitoring plan and the selection of potential breeding sites were based on three main sources of information:

1) Water springs, troughs, and stream courses identified from IGM topographic map.

2) Analysis of local orography to detect potential depressions and valleys that could host unrecorded water sources.

3) Previous studies on the same species within the study area (Tiberi et al 2018).

A total of 45 potential breeding sites were identified. Each site was visited multiple times per season to capture the full phenological cycle of the amphibian species, from larval to adult stages (Lanza et al. 2007). Observations were conducted in the animals' natural habitats, and both the species and surrounding environments were documented through photographs and images taken with a Nikon D70s digital camera equipped with a Sigma 17–70 mm f/2.8–4 DC Macro lens. Georeferencing was performed using a Garmin GPSMAP 64st device. Species identification and environmental characterization were carried out in situ, and supplemented with analysis of recorded images when necessary. The dimensions of water springs and troughs were measured using a measuring tape, and volume estimates were subsequently calculated. Land-use composition around each sampling site was estimated through direct field surveys. We delineated a circular buffer of 100 m radius around each site and quantified the percentage cover of each land-use category (e.g., grazing land, mixed forest, urban areas etc.) following standard landscape-ecology protocols (Turner et al. 2001). The estimation was carried out by visually assessing ground cover along four orthogonal radial transects and integrating these observations with a systematic visual scan of the entire buffer. Along each transect, we recorded the dominant land-cover type every 10 meters; the proportional cover of each category within the buffer was then derived by summing the transect lengths where each category occurred and expressing these values as a percentage of the total buffer area. This field-based procedure reduces observer bias and provides an accurate estimation of local land-use and microhabitat composition, which is particularly relevant for low-vagility species such as amphibians.

DATASET DESCRIPTION

The dataset is structured into 23 columns, representing the following variables: location ID (Locality), habitat typology (Type), geographic coordinates (Easting and Northing, WGS 84 / UTM zone 33N), altitude (alt), 8 columns for species presence or absence (R for recorded, N for not recorded), 8 columns for the percentage cover of surrounding land use types (streets, urban, grazing lands, shrubs, farming lands, mixed forests, reforestation, rushes and reeds), the percentage of solar exposure (exp), water volume in cubic meters (vol_tot).

SUMMARY OF DATA

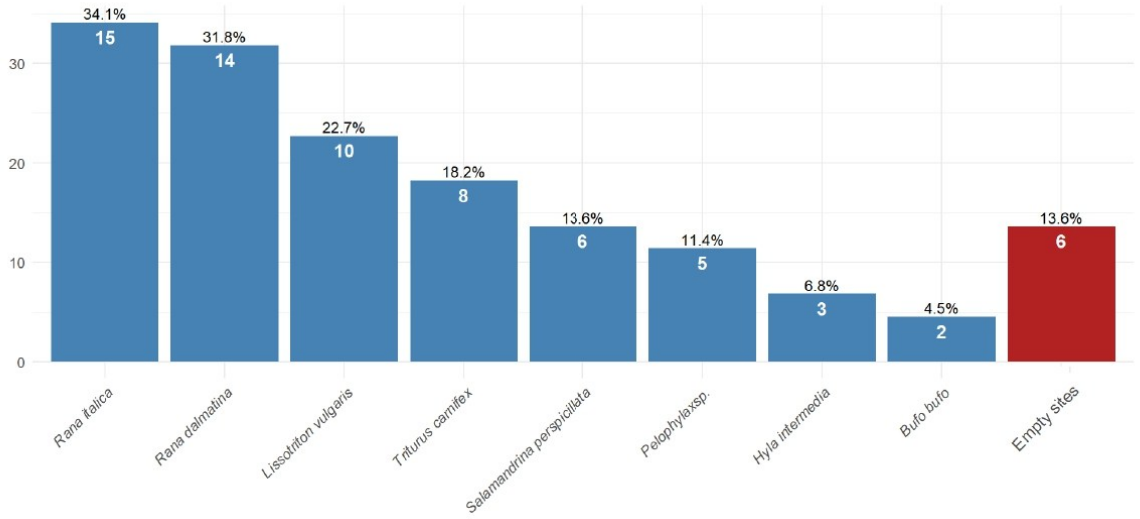

Figure1: percentage of site occupation and total number of occupied sites per species.

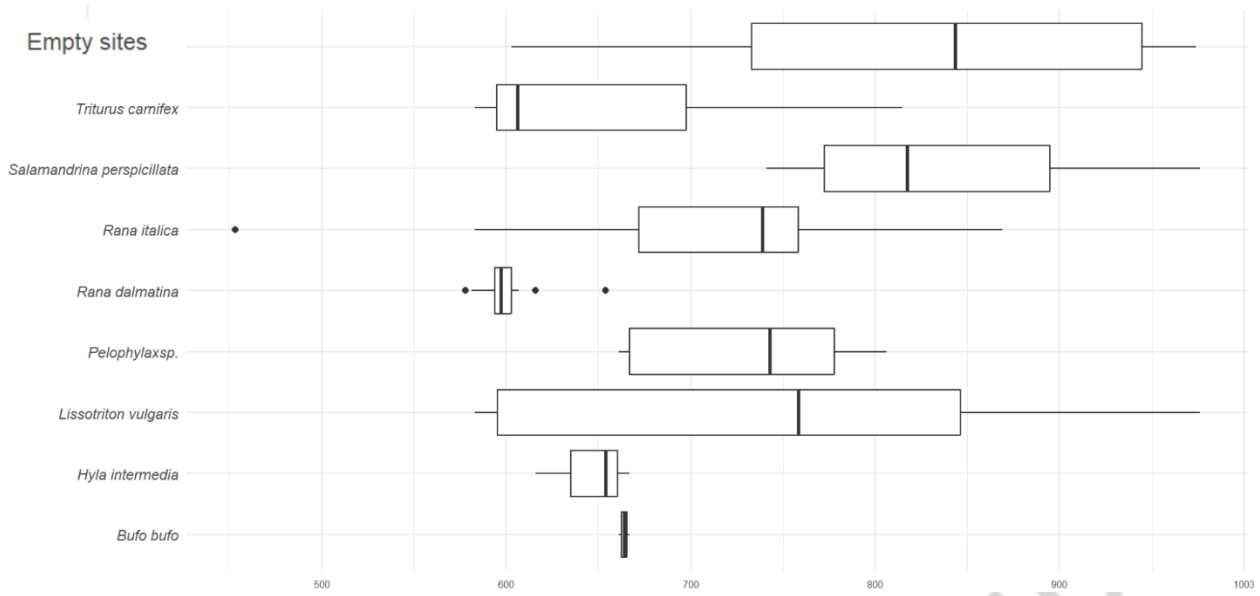

Figure2: altitude per species.

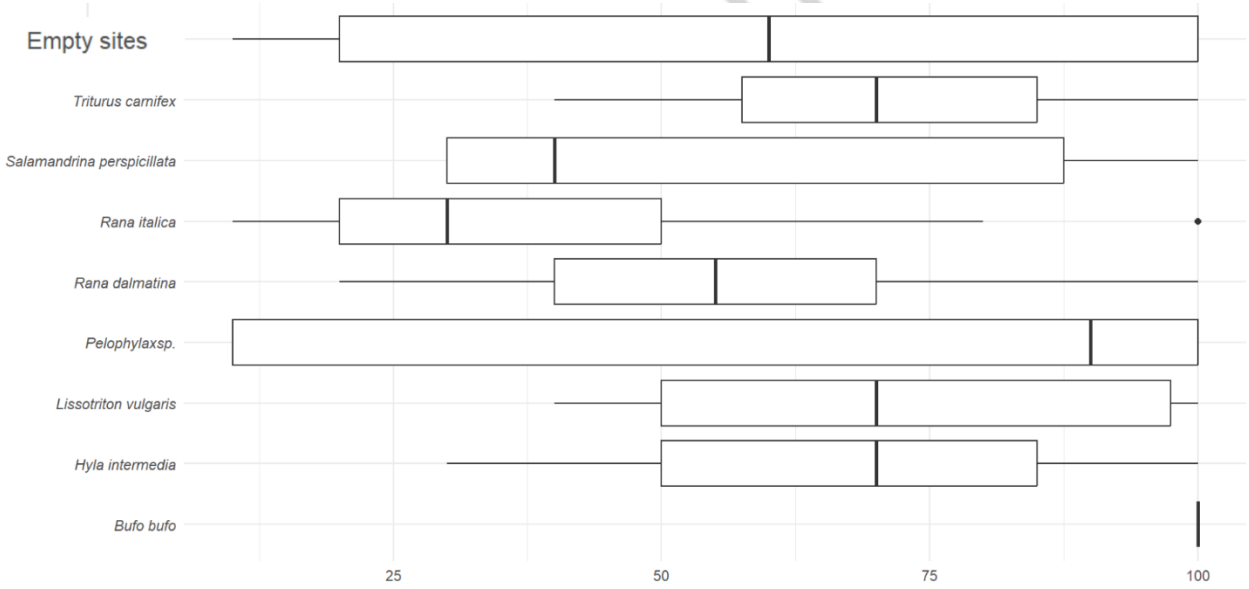

Figure 3: Solar exposure per species.

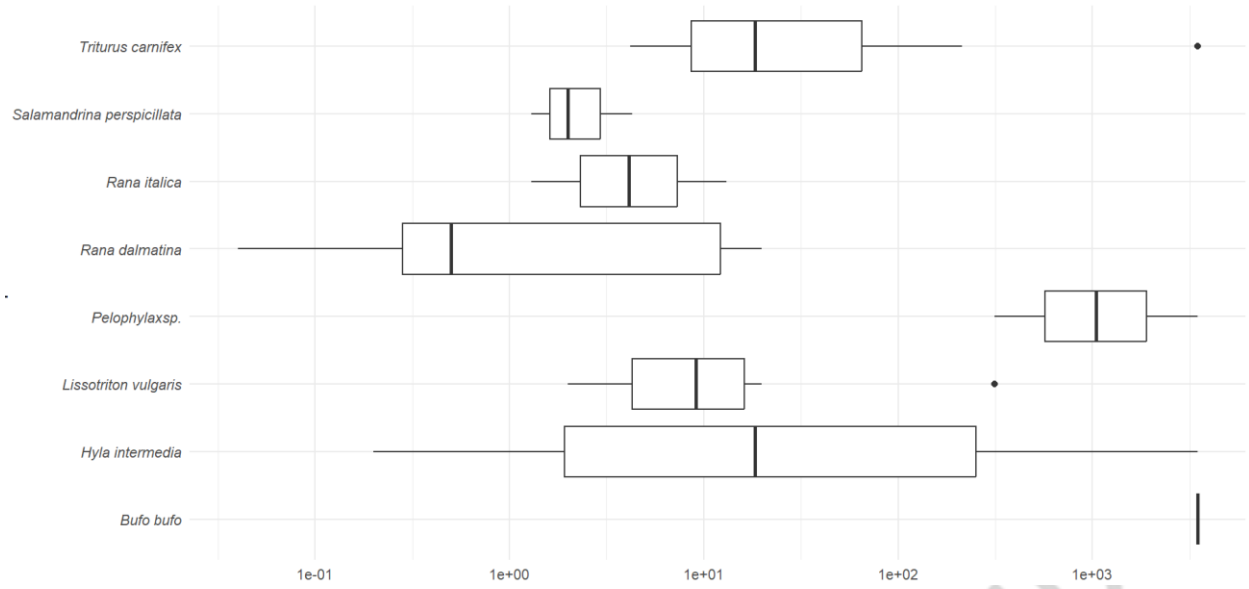

Figure4: Volume of the water body (log-trasformed) per species.

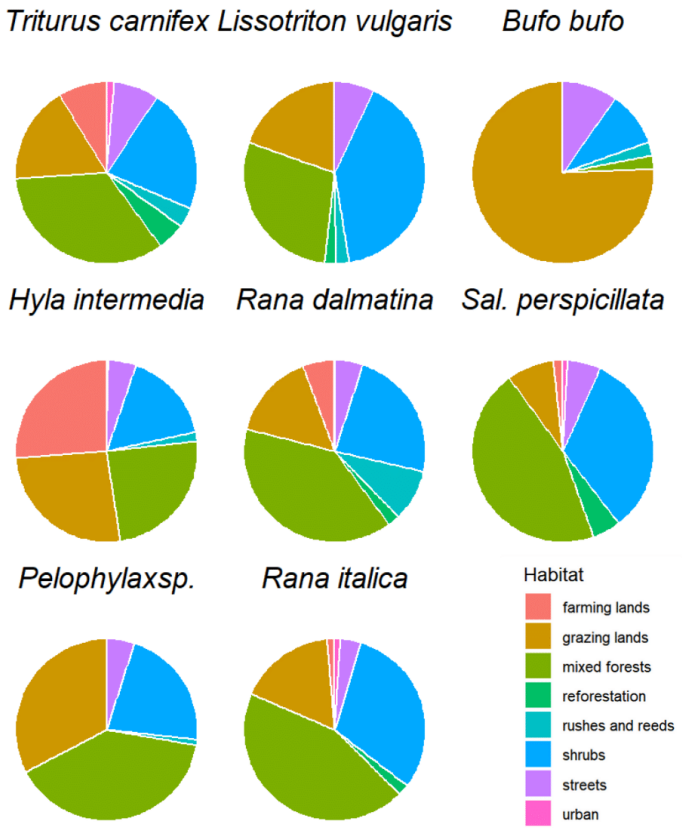

Figure5: Average land cover use by species.