Greater use of anthropogenic nest materials by Blue tits and Great tits in urban than rural sites across Europe

Introduction

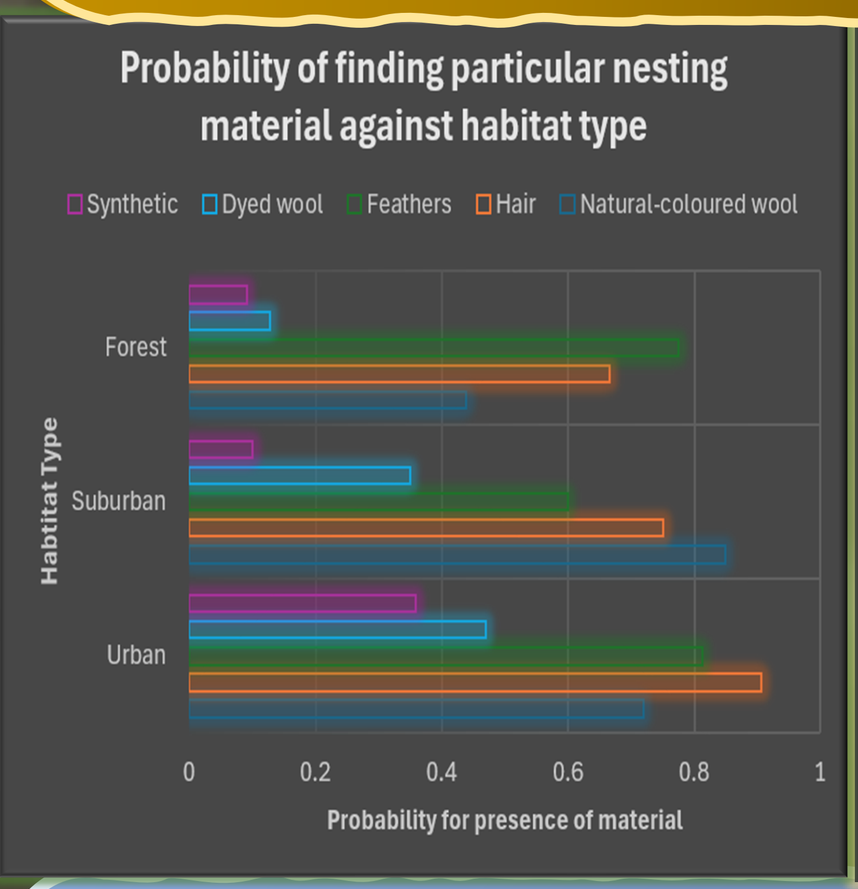
As the world becomes more urbanised, is it important to investigate how this affects the local wildlife. Urban environments differ from natural ones in several ways, including the presence of anthropogenic materials left behind by humans. These may be used and disseminated by city-dwelling animals, but this remains poorly documented.

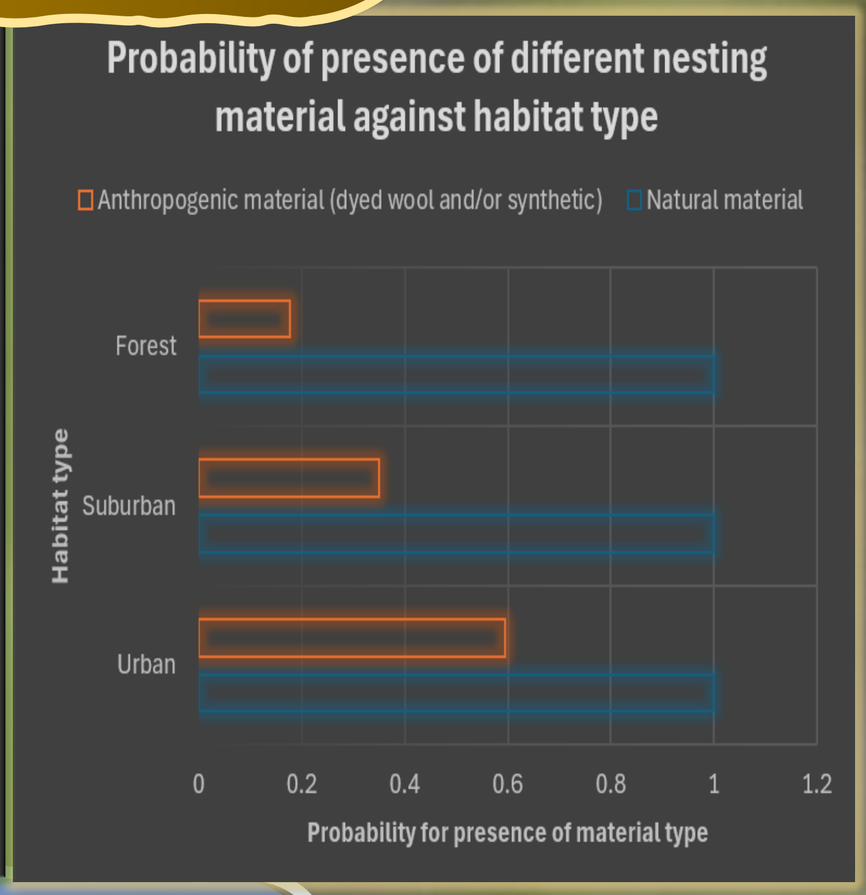
Here, we looked at the composition of nests in lining materials used by Great tits (*Parus major*) and Blue tits (*Cyanistes caeruleus*) for purposes of insulation. Our sample included lining materials sampled from nests at different urban and rural sites in Norway, France, Belgium, the Netherlands, Scotland, and Finland.

Hypothesis: urban habitats will have an overall higher frequency of anthropogenic materials in nests than forest nests

Methods

1. For each of XX samples (XX urban, XX suburban, XX forest), note in Excel the presence of the following 5 materials (1=present, 0=absent):
   - Natural-coloured wool
   - Hair
   - Feather
   - Dyed wool
   - Synthetics
2. For each habitat type (urban, suburban, forest), divide the number of nests found with each material by the total of nests to obtain the frequency of each type of material
3. Repeat step 2 for natural material (natural-coloured wool, hair, & feathers) and anthropogenic material (dyed wool & synthetic)





Results:

- All habitat types have high frequencies for use of hair and feathers
- Overall frequency of anthropogenic material was at least 0.17
  - Synthetics are more than twice as frequent in urban nests than forest and suburban nests
  - The frequency of synthetic materials does not differ markedly between forest and suburban habitats
  - Dyed wool is infrequent in forest nests, but rather frequent in suburban and urban nests (nearly half of urban nests contain dyed wool)
  - Roughly 60% of urban nests contained some sort of anthropogenic lining material

Discussion

- As hypothesised, urban nests had the highest frequency of anthropogenic materials, while forest nests had the lowest frequency.
- This is likely due to greater availability of synthetic materials in urban environments due to greater human presence compared to suburban and rural environments.
- However, anthropogenic materials were not uncommon in forest habitats despite lower apparent human activity. This indicates that humans also leave materials behind in more rural areas.
- The insulation efficiency of synthetic materials might differ from natural materials, with potential effects on the reproductive success of birds.
- Hair found in city nests might come mostly from pets, which are often chemically treated against parasites. The effects on nest parasites are unknown.

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