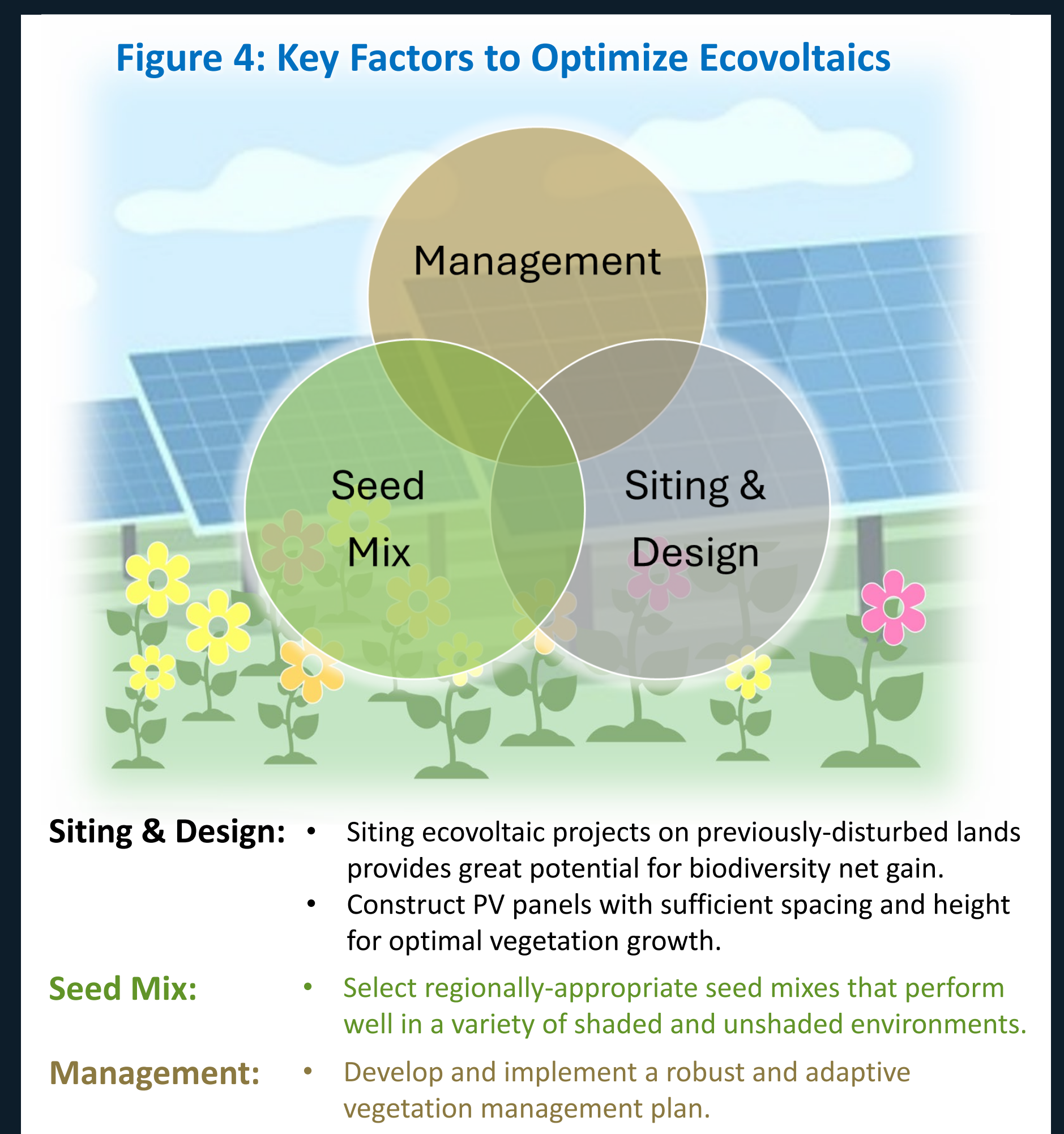
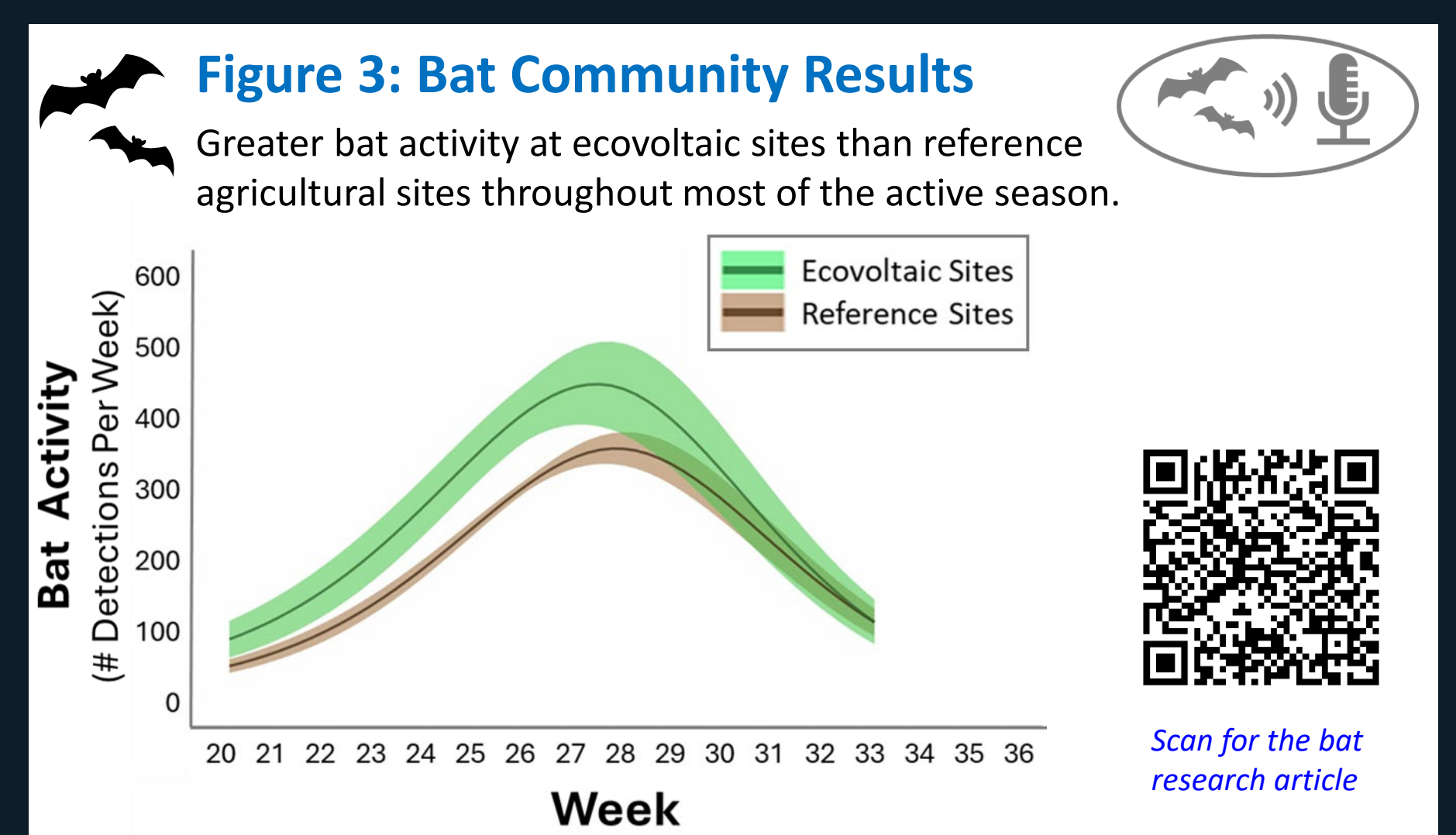
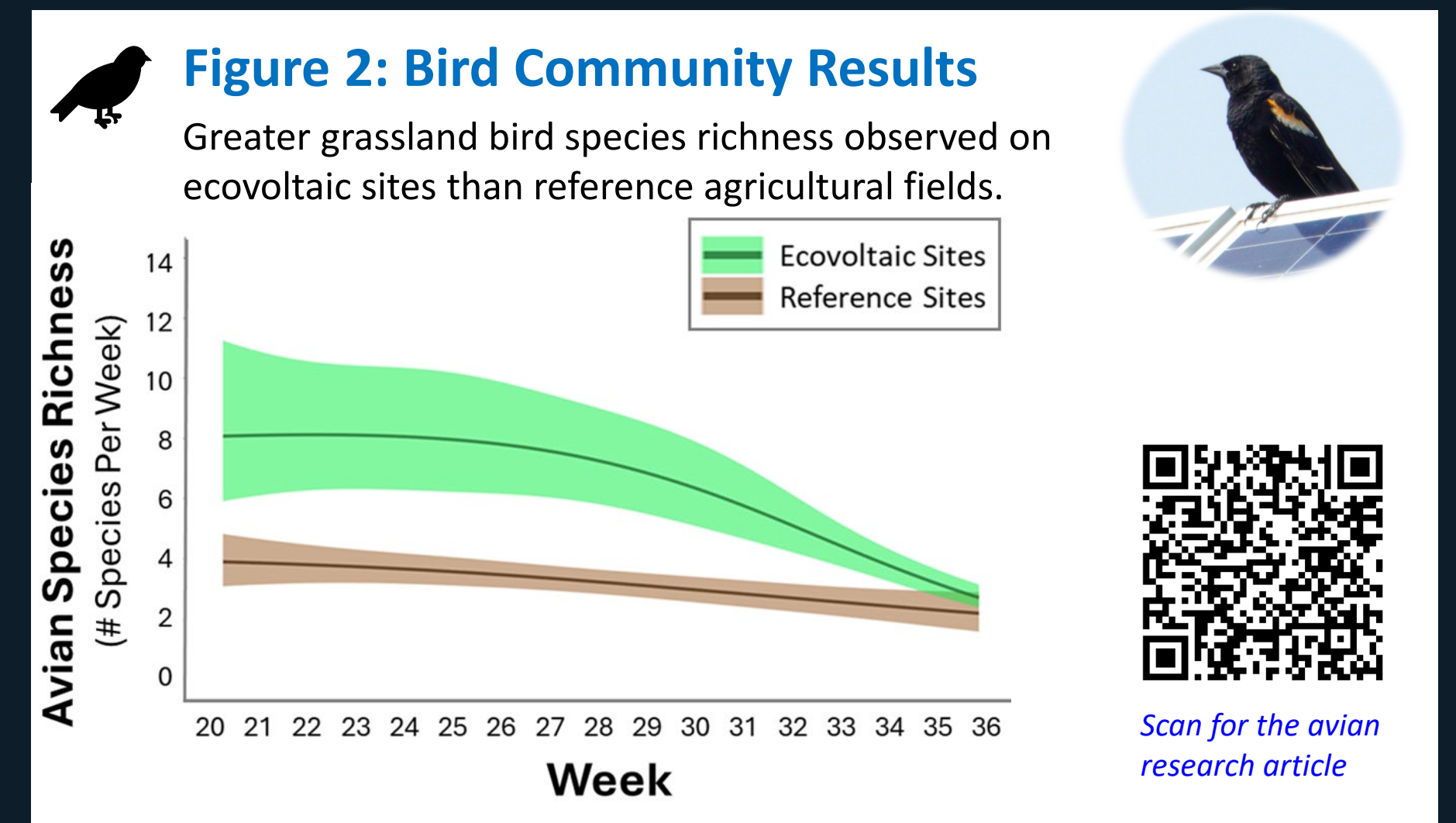
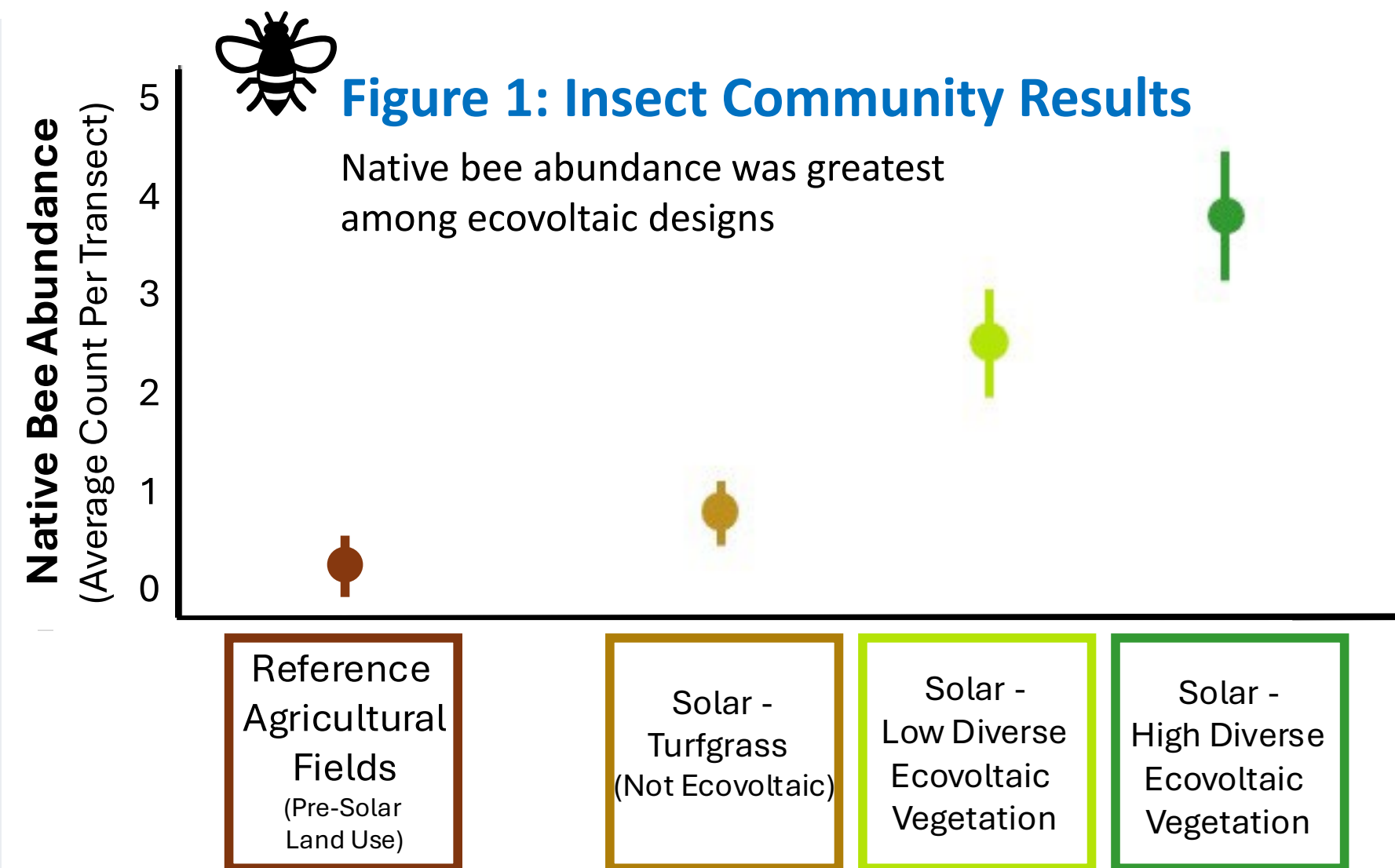
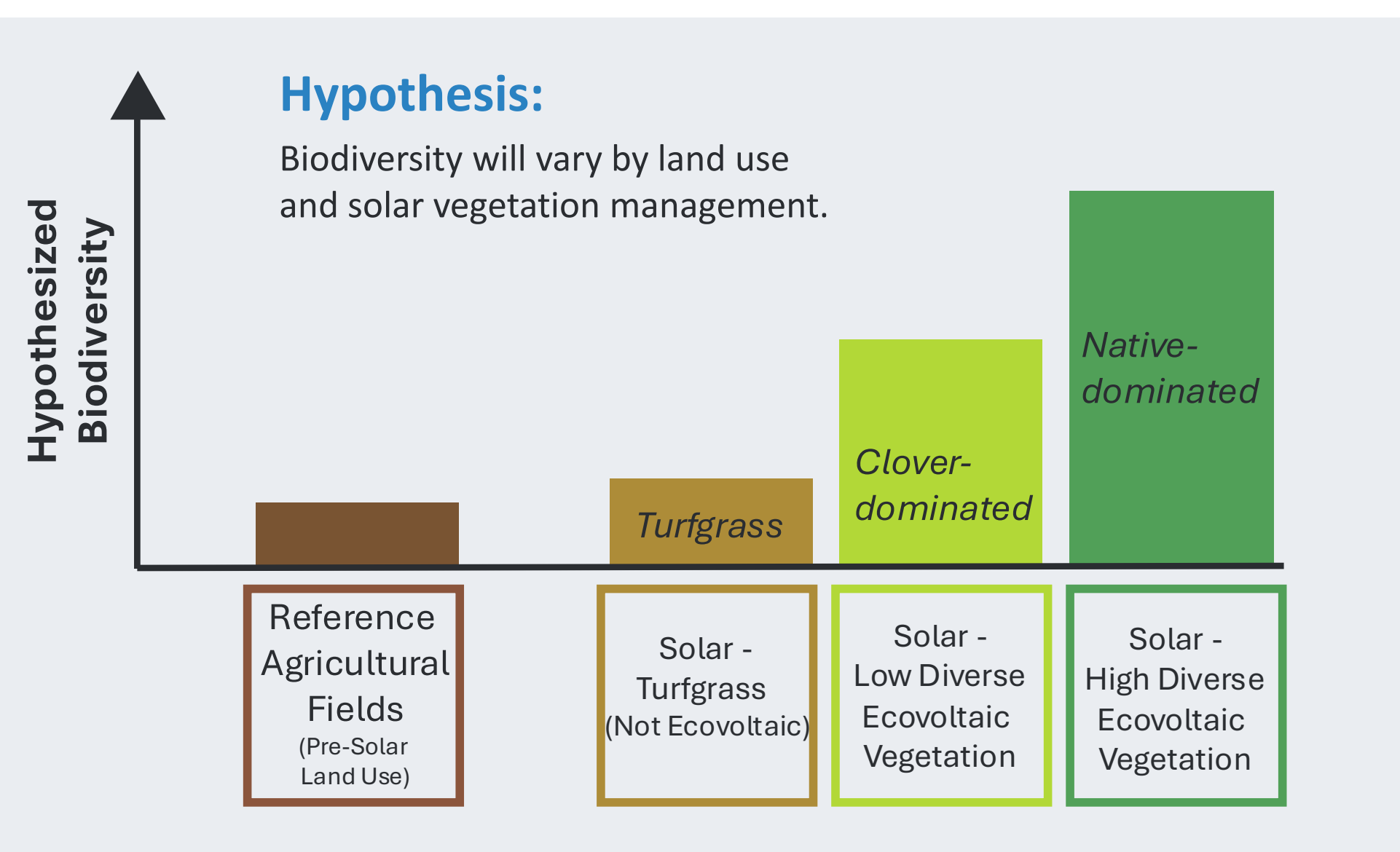


Foundational Research on the Nature-Positive Potential of Ecovoltaics

Biodiversity Benefits and Best Practices to Optimize Ecovoltaics



Intro

Ecovoltaics are ecologically informed photovoltaic (PV) solar energy developments that co-prioritize electricity generation with ecosystem function. As a novel land management practice, foundational field research is paramount to understand biodiversity responses and inform best management practices.

Methods

Field research was conducted at 12 ecovoltaic sites and paired reference sites across the Midwest:

- Vegetation and insect surveys.
- Passive acoustic monitoring for birds and bats.



Results

Compared to pre-solar land uses (reference agricultural fields) and conventional solar vegetation management (turfgrass), **ecovoltaic** management supported:

- Greater **insect abundance**, especially native bees (Figure 1);
- Greater **avian species richness** (Figure 2);
- Greater **bat activity** (Figure 3)

Discussion

- When sited and managed appropriately, **ecovoltaic** designs can achieve **biodiversity net gain** targets.
- Even less diverse **ecovoltaic** designs (e.g., clover dominated) can improve biodiversity under certain circumstances.
- Ecological effectiveness is typically a function of three main factors (Fig 4):
 - Siting and design
 - Seed mix selection
 - Vegetation Management

Authors and Contributors

Leroy Walston, Heidi Hartmann, Laura Fox, Katherine Szoldatits, Yuki Hamada, and Michael Ricketts

Funding Acknowledgement

U.S. DEPARTMENT OF **ENERGY** | Office of ENERGY EFFICIENCY & RENEWABLE ENERGY
SOLAR ENERGY TECHNOLOGIES OFFICE

Contact Info

Leroy Walston | lwalston@anl.gov



SITING+
PERMITTING
CO-LOCATED WITH **PEAK**

Argonne
NATIONAL LABORATORY



Scan here for relevant publications