

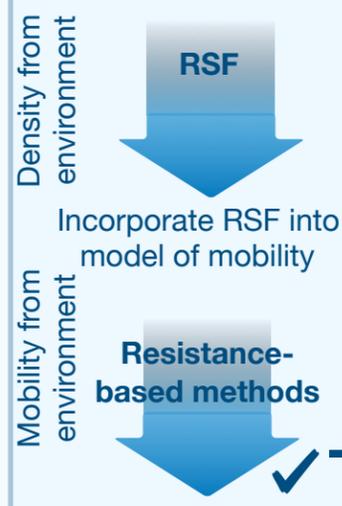
# Mechanistic

Identify hypothesized mechanisms

Gather covariates and append to points

## Model density and mobility

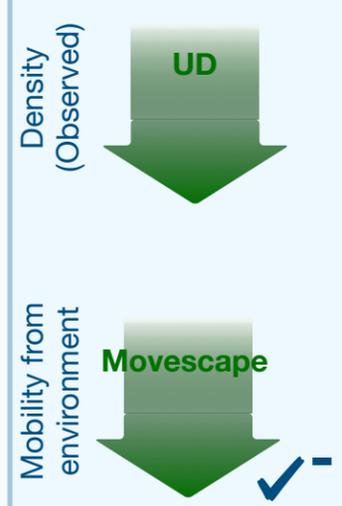
**Example strategy 1:**  
Inferred approaches



**Example strategy 2:**  
Inferred approaches

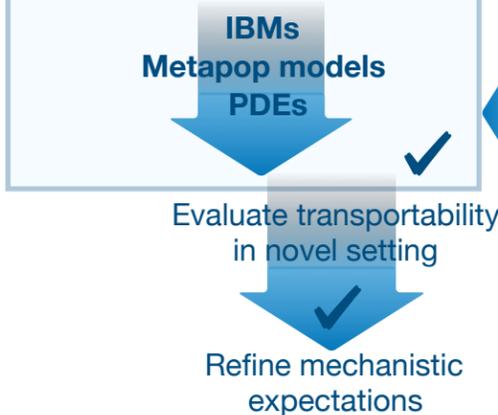


**Example strategy 3:**  
Descriptive approaches



Predict movement trajectories

## Model transmission

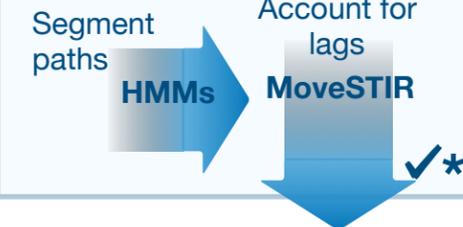


## Model contact

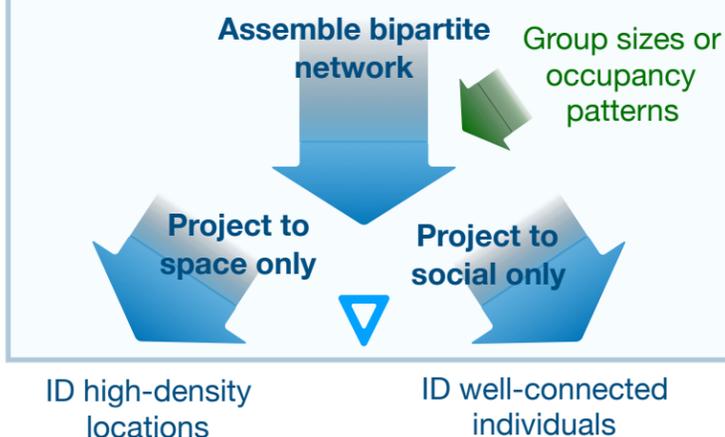


# Network-based

## Model contact



## Model density and mobility



Extract node degrees or strengths

Identify hypothesized mechanisms

Evaluate links to environmental and social attributes

## Model transmission

Evaluate transportability in novel setting

Refine mechanistic expectations

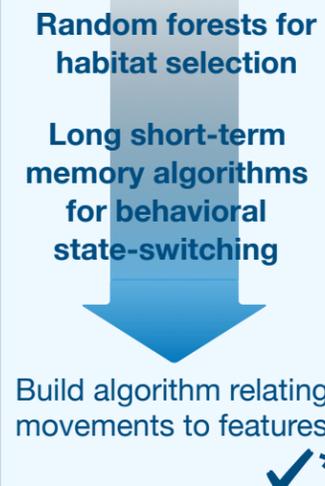
# Mining-modeling

Identify hypothesized mechanisms

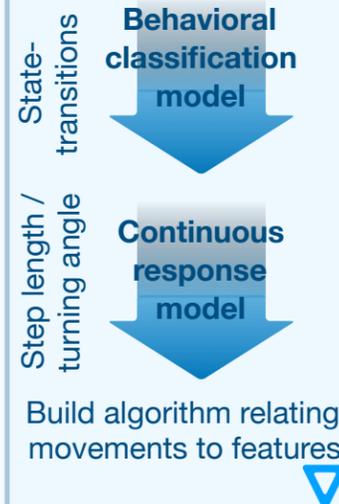
ID and produce desired features

## Model density and mobility

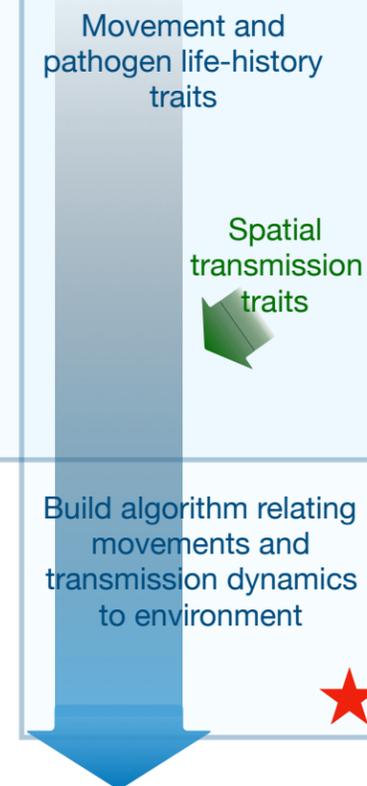
**Example strategy 1:**  
Single focal process



**Example strategy 2:**  
Full trajectory



**Example strategy 3:**  
Movement and disease in tandem



Cross-validate for in-sample predictive performance

## Model contact



Evaluate transportability in novel setting

Refine mechanistic expectations and feature sets

## Model transmission

IBMs  
Metapop models  
PDEs

Increasingly phenomenological

✓ Many full implementations

✓\* Full implementations exist, but are rare

✓- Full implementations exist, but some components are ad hoc

▽ Prototypical examples exist, but no extension to landscape data

★ Hypothetical only