

# AI for BIODIVERSITY

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## Climate Change



## Species Extinction



DATA

methods



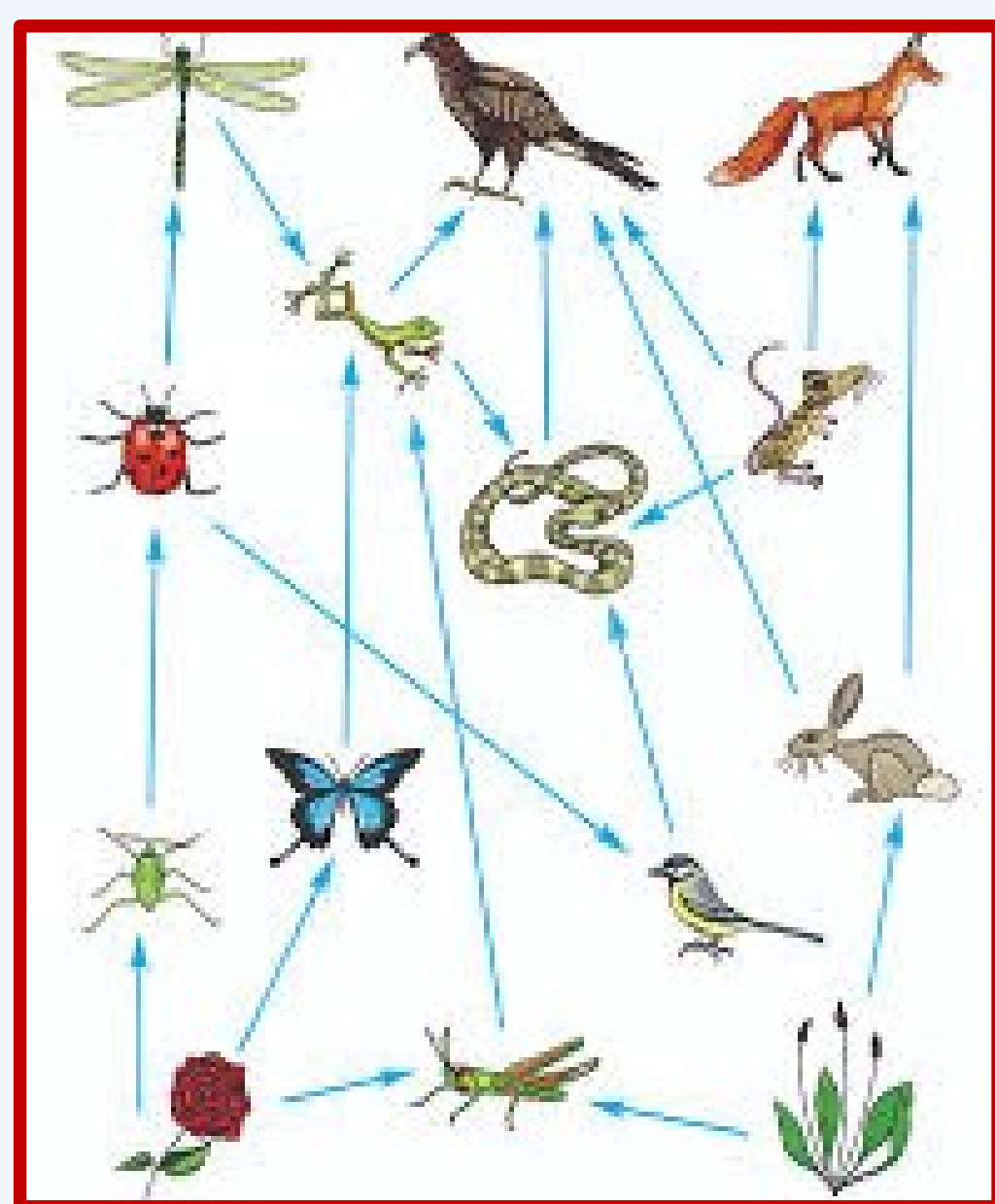
Knowledge

Tech

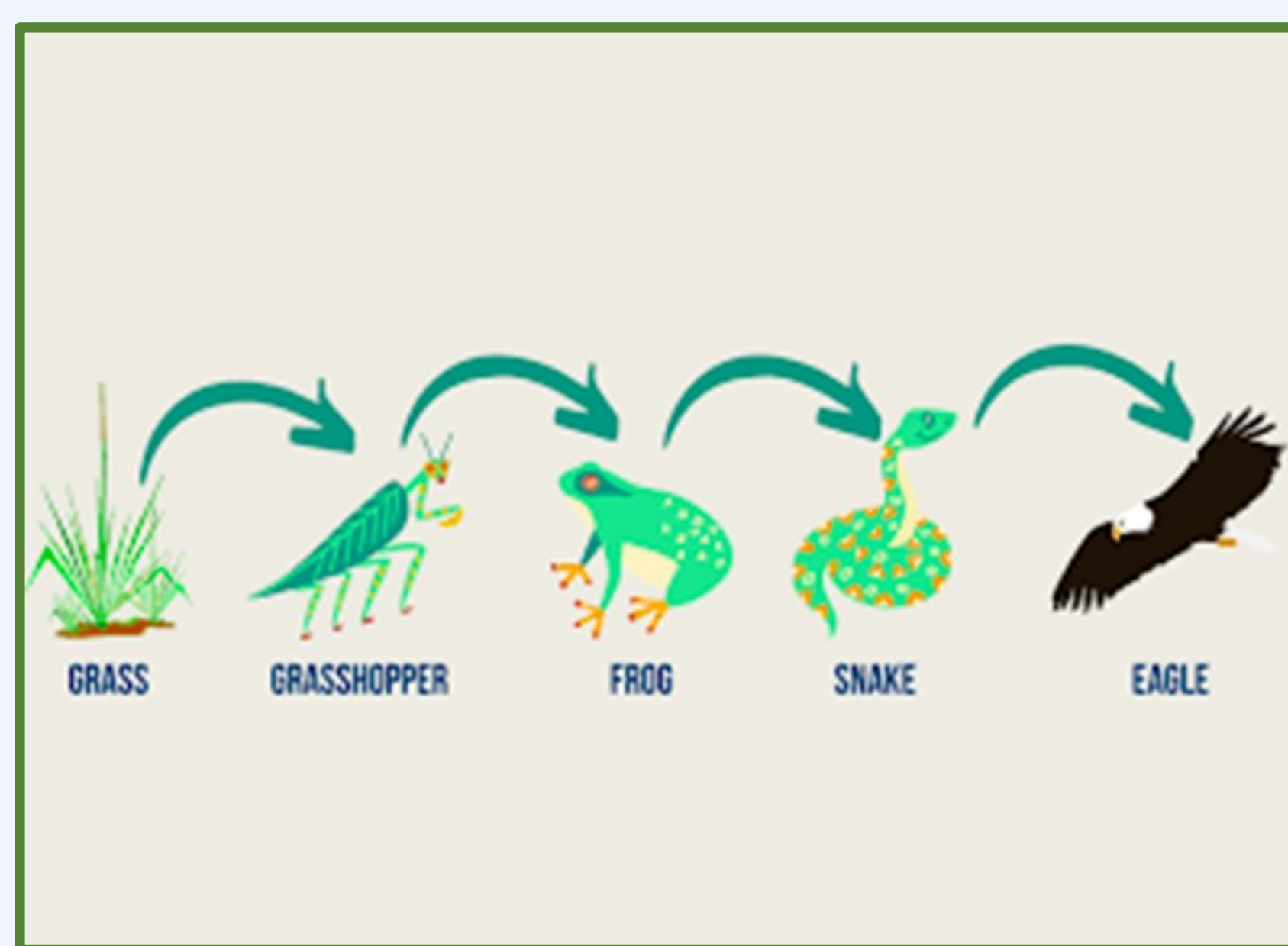
## Preserve Biodiversity



## Food web



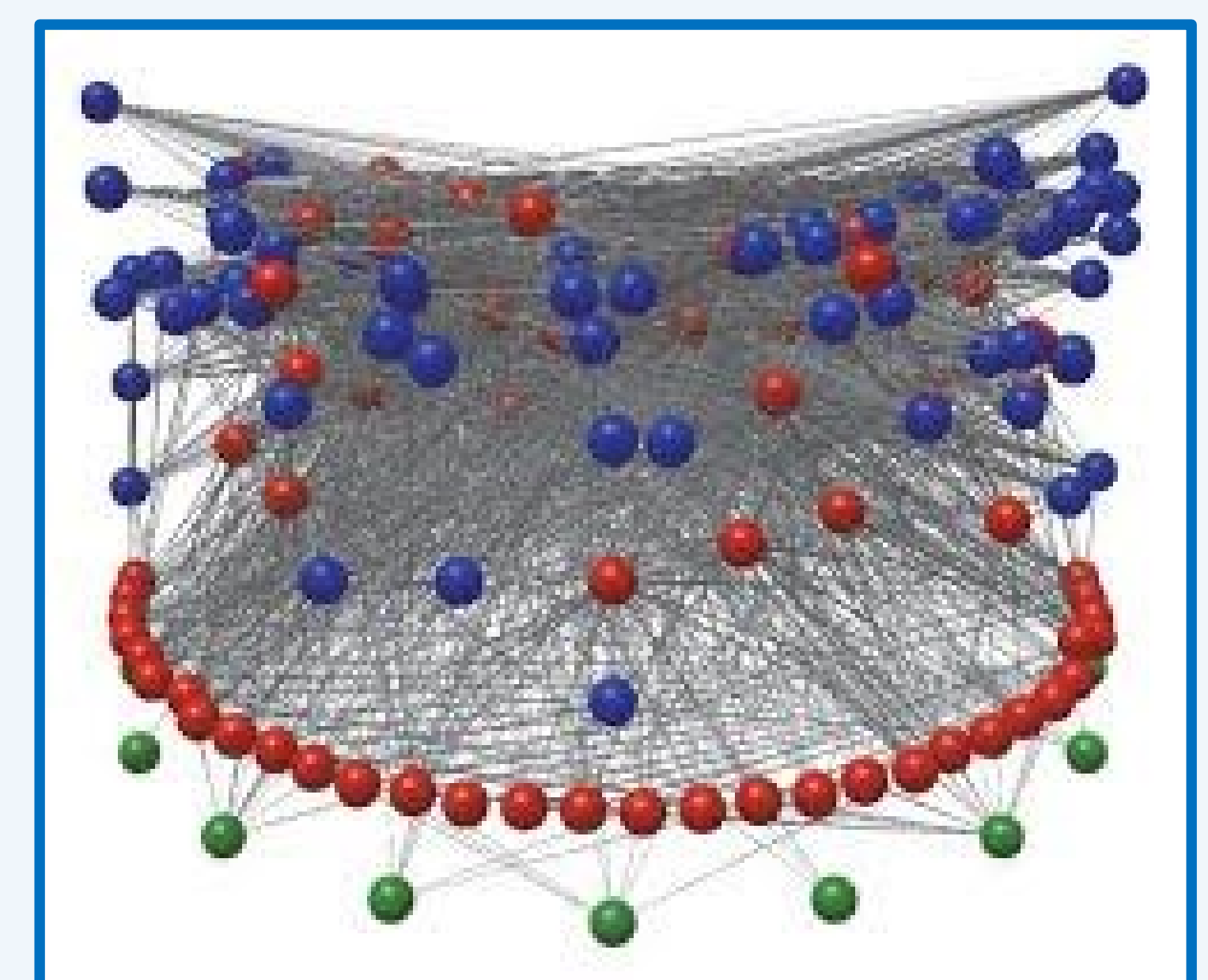
## Trophic chain



## Domino extinction

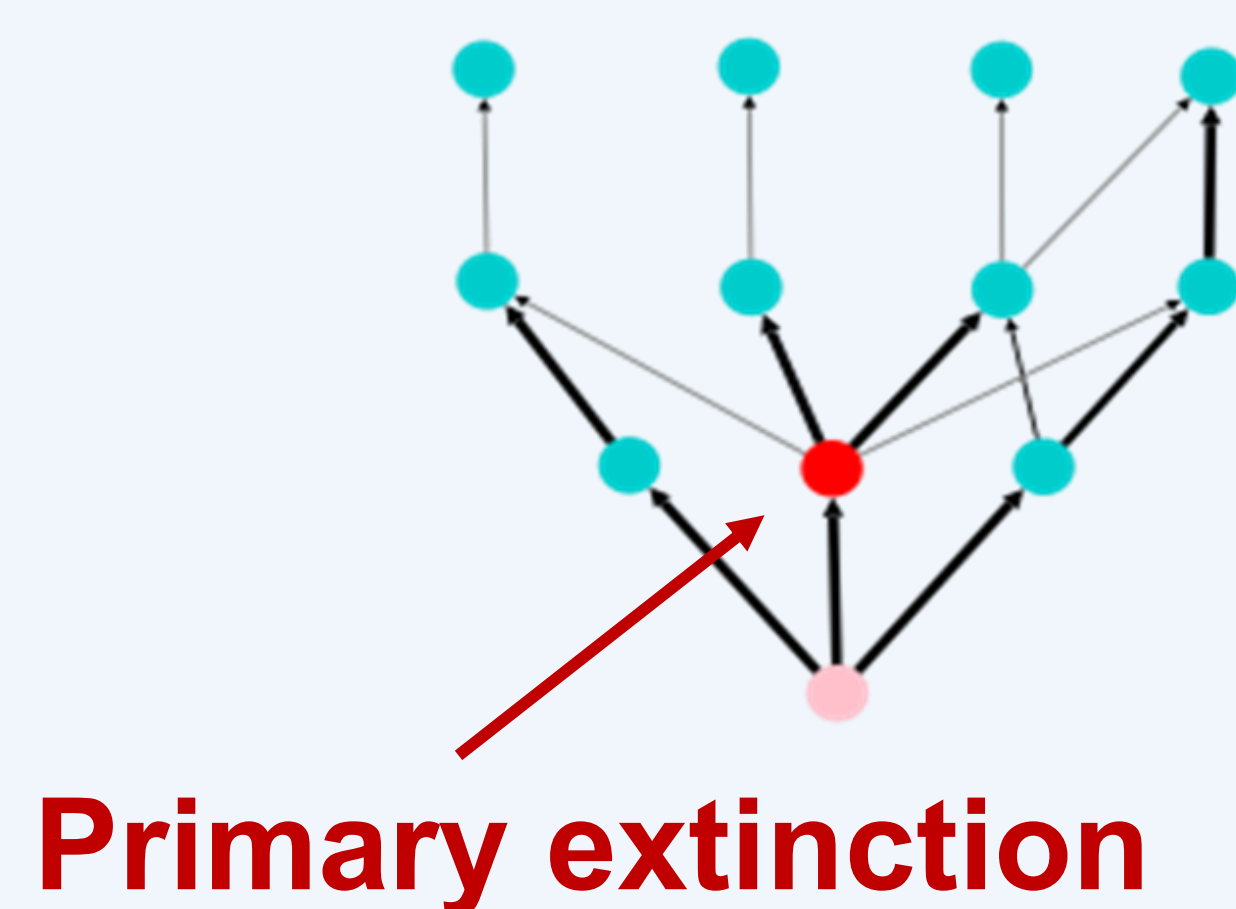


## Complex Networks

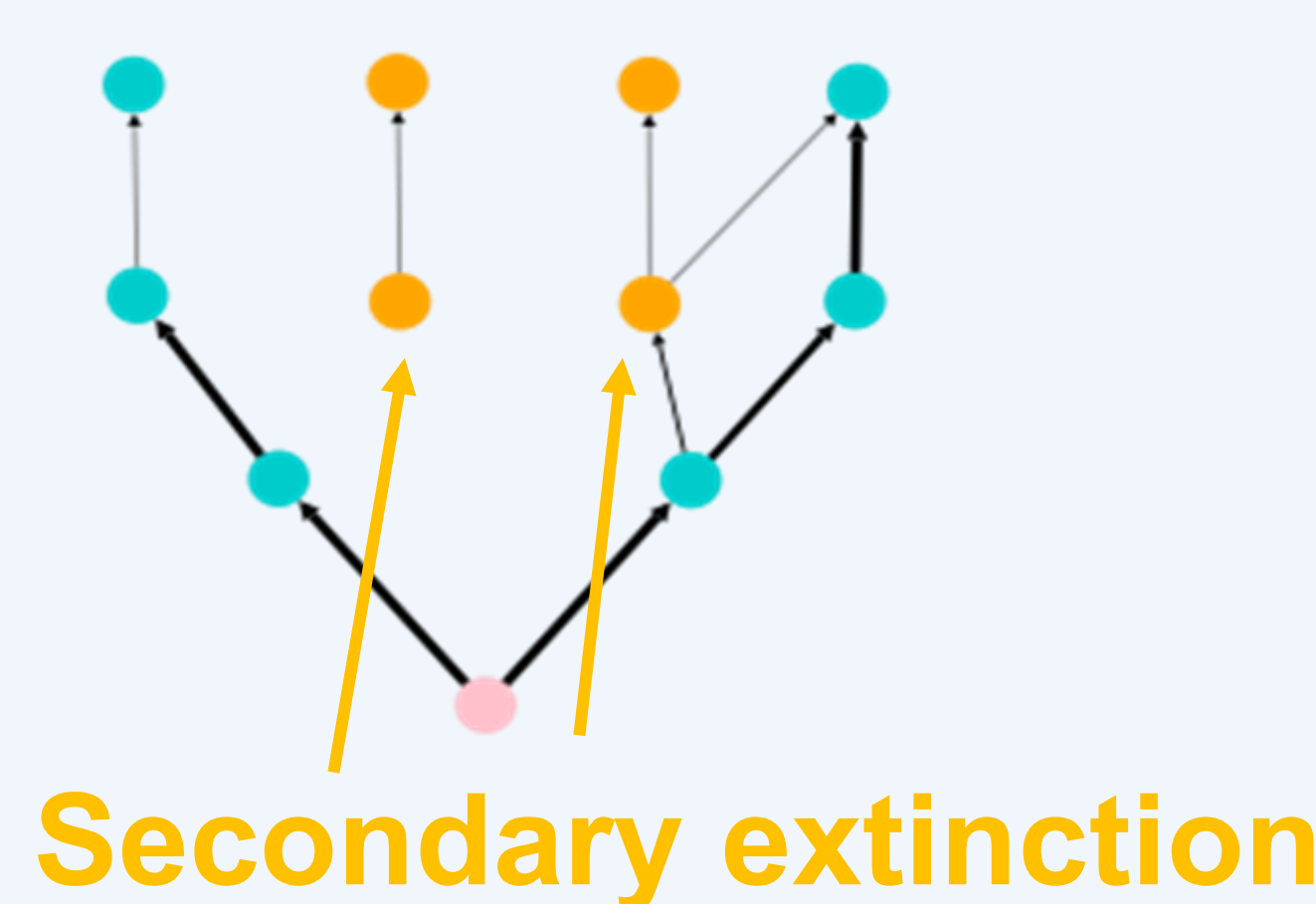


## How many species lose energy intake to go extinct?

### 'energetic criteria'

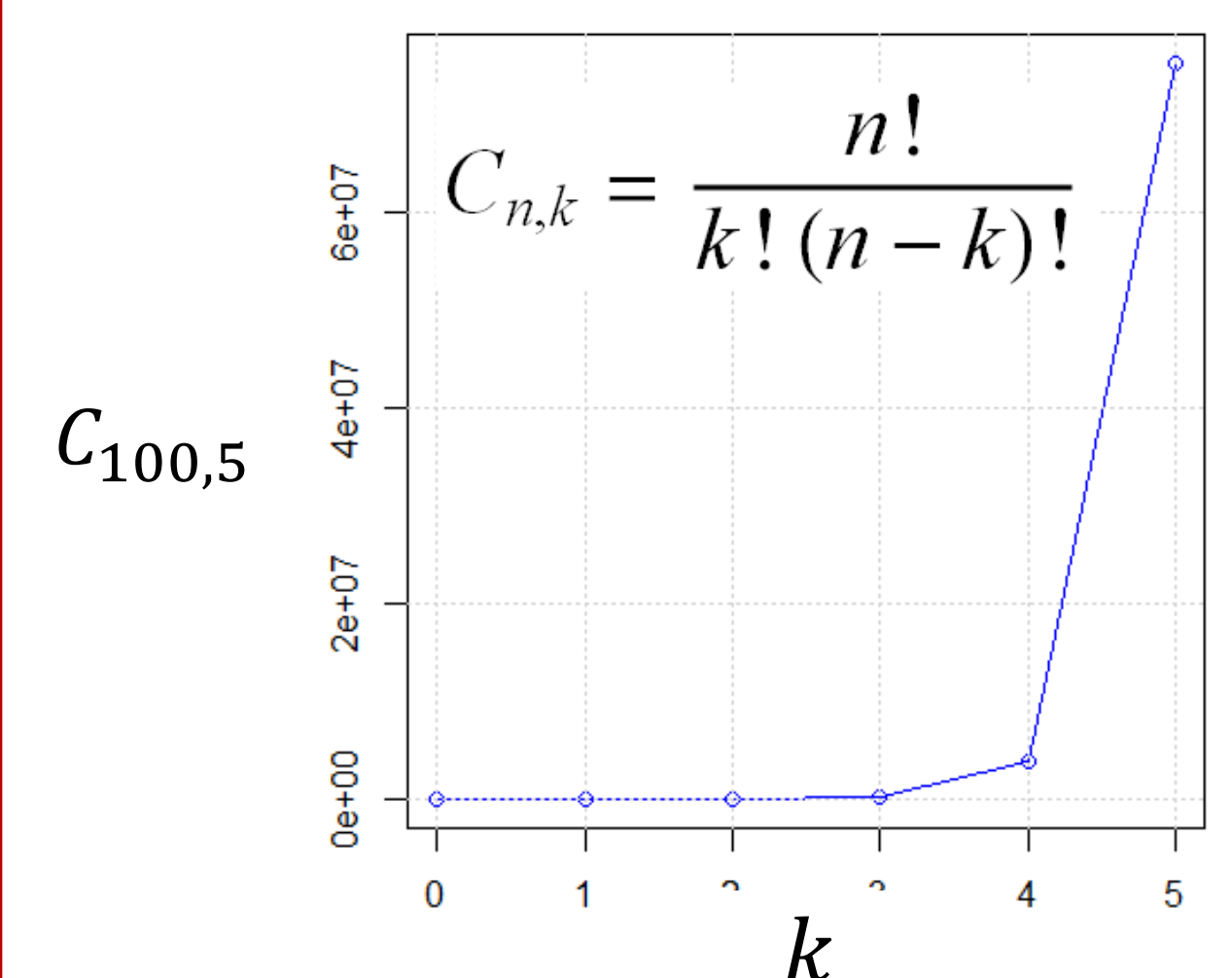


Primary extinction



Secondary extinction

## NP Hard !!



## Predicting secondary extinction

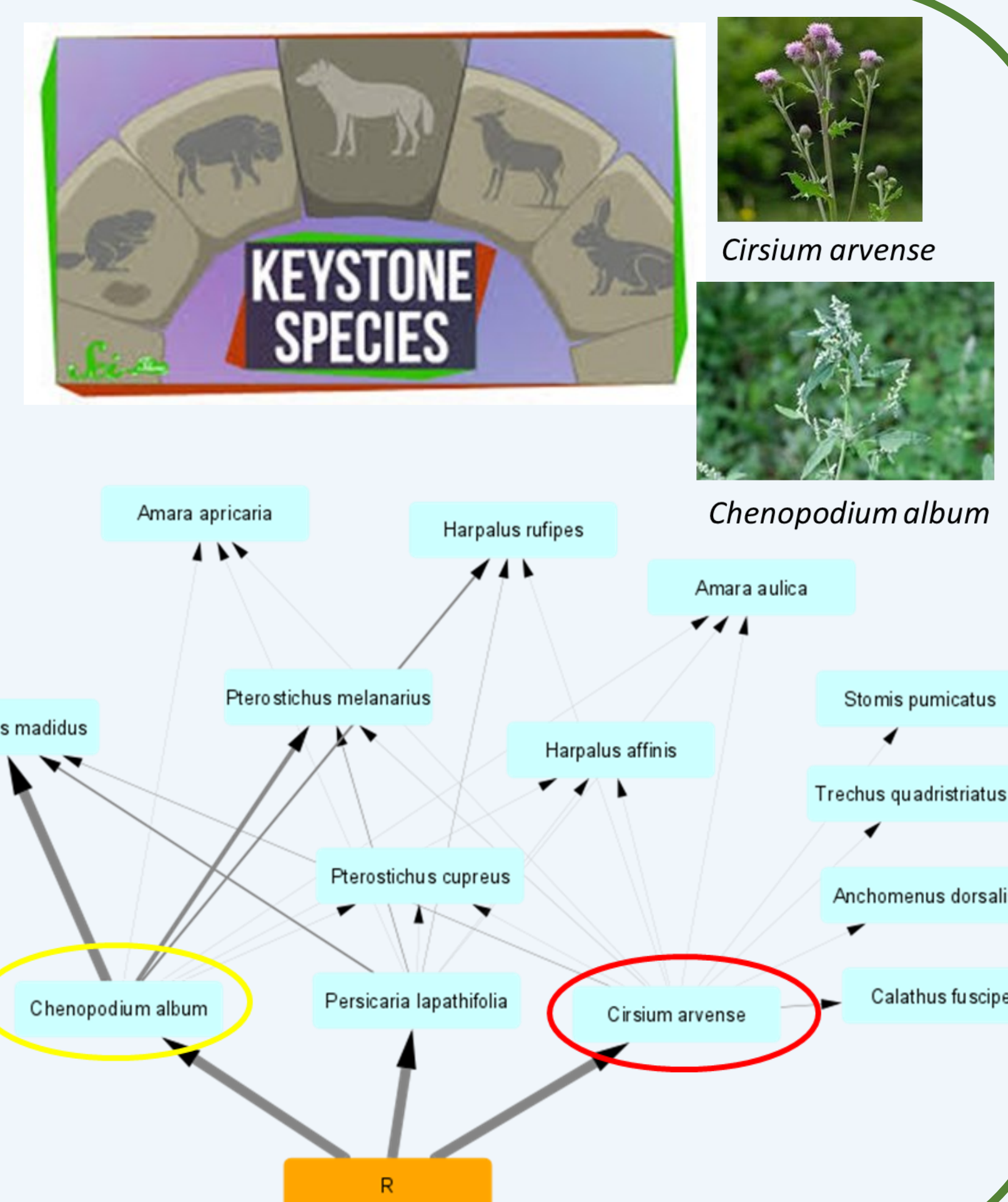
Algorithms

+

Databases



| Species                 | th=0 | 0.1 | 0.2 | 0.3 | 0.4 |
|-------------------------|------|-----|-----|-----|-----|
| Chenopodium album       | 0    | 0   | 0   | 7   | 7   |
| Persicaria lapathifolia | 0    | 0   | 0   | 0   | 0   |
| Cirsium arvense         | 4    | 4   | 4   | 4   | 4   |
| Amara apricaria         | 0    | 0   | 0   | 0   | 0   |
| Amara aulica            | 0    | 0   | 0   | 0   | 0   |
| Anchomenus dorsalis     | 0    | 0   | 0   | 0   | 0   |
| Calathus fuscipes       | 0    | 0   | 0   | 0   | 0   |
| Harpalus affinis        | 0    | 0   | 0   | 0   | 0   |
| Harpalus rufipes        | 0    | 0   | 0   | 0   | 0   |
| Pterostichus cupreus    | 0    | 0   | 0   | 0   | 0   |
| Pterostichus madidus    | 0    | 0   | 0   | 0   | 0   |
| Pterostichus melanarius | 0    | 0   | 0   | 0   | 0   |
| Stomis pumicatus        | 0    | 0   | 0   | 0   | 0   |
| Trechus quadristriatus  | 0    | 0   | 0   | 0   | 0   |



Italian SuperComputing Resource Allocation Initiative (ISCRA) Project:

Exploring Structural Characteristics of Complex Networks via Random Walk Analysis (ESCRW)



30.000 cpu/hours  
on Galileo100 and Leonardo

We Make Future - Fiera Internazionale e Festival sull'Innovazione: AI, Tech and Digital

13-15 June 2024, Bologna, Italy

