

---

# Biogeographic affinities of Mesoamerican Magnolias

---

By VIACHESLAV SHALISKO

With collaboration of J. ANTONIO VÁZQUEZ GARCÍA  
and ERNESTO DE CASTRO ARCE

UNIVERSITY OF GUADALAJARA  
CUCBA ▪ CUCSH

# Taxonomic scope (sampling)

---

## Section *Magnolia*

13 of 28–31 spp.  
(42–46%)

*Magnolia grandiflora*  
*Magnolia guatemalensis*  
*Magnolia iltisiana*  
*Magnolia krusei*  
*Magnolia montebelloensis*  
*Magnolia pacifica*  
*Magnolia panamensis*  
*Magnolia schiedeana*  
*Magnolia sharpii*  
*Magnolia tamaulipana*  
*Magnolia vazquezii*  
*Magnolia virginiana*  
*Magnolia yoroconte*

## Section *Talauma*

13 of 105–126 spp.  
(10–12%)

*Magnolia brasilensis*  
*Magnolia calimaensis*  
*Magnolia caricifragrans*  
*Magnolia dodecapetala*  
*Magnolia heriberto*  
*Magnolia incana*  
*Magnolia lenticellatum*  
*Magnolia mahechae*  
*Magnolia mexicana*  
*Magnolia minor*  
*Magnolia portoricensis*  
*Magnolia sinacacolini*  
*Magnolia splendens*

## Section *Macrophylla*

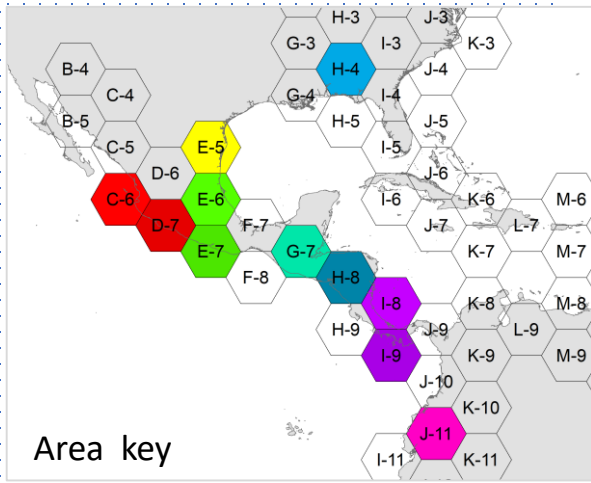
3 of 6 spp.  
(50%)

*Magnolia dealbata*  
*Magnolia macrophylla*  
*Magnolia rzedowskiana*  
  
+ *Magnolia calophyllum*\*

# Methods

---

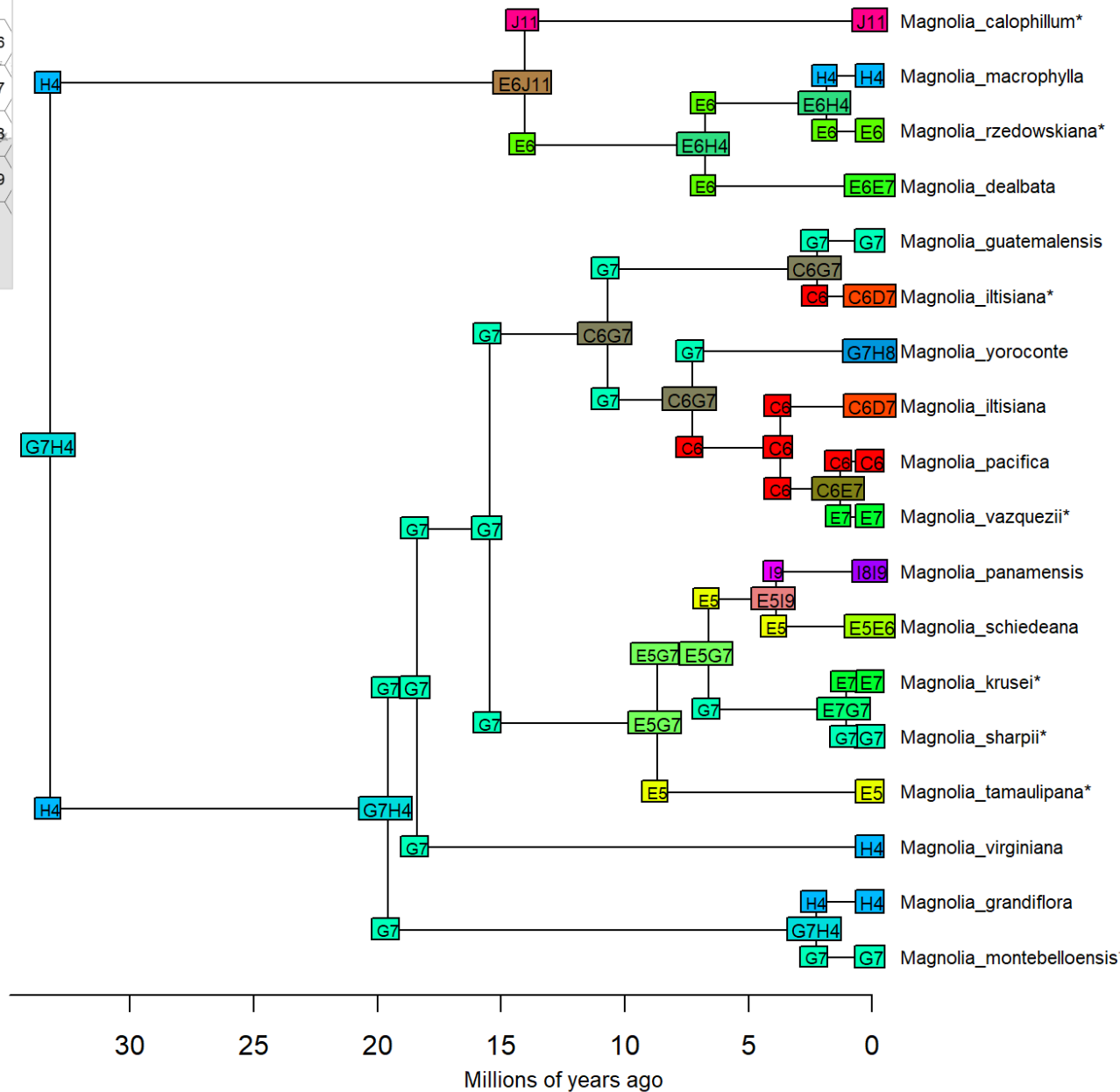
- Phylogeny provided by De Castro Arce (unpubl.)
- Areas defined as an artificial network of hexagonal units in Neotropics and North America with hexagon long diagonal of approximately 600 km
- Dispersal probability inversely proportional to geographic distance between areas
- Ancestral areas reconstructed with Dispersal-Extinction-Cadogenesis model (DEC) and modified DEC with jump-dispersal constraint (DEC-J) as implemented in BioGeoBEARS

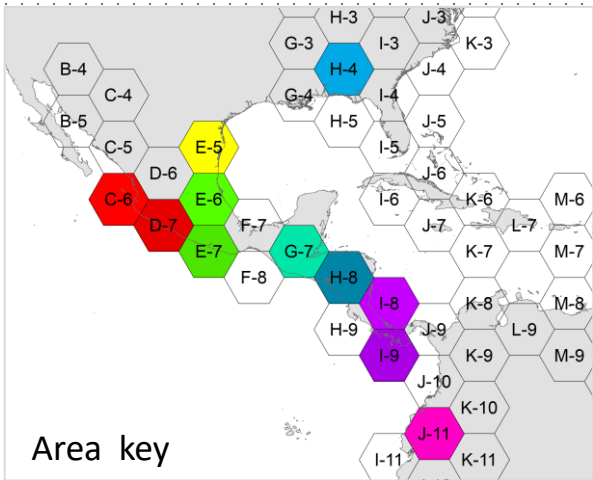


# Sections *Magnolia* & *Macrophylla*

## DEC

**BioGeoBEARS DEC on Magnolia subset 1**  
 ancstates: global optim, 2 areas max. d=0.0298; e=0.0276; j=0; LnL=-70.14

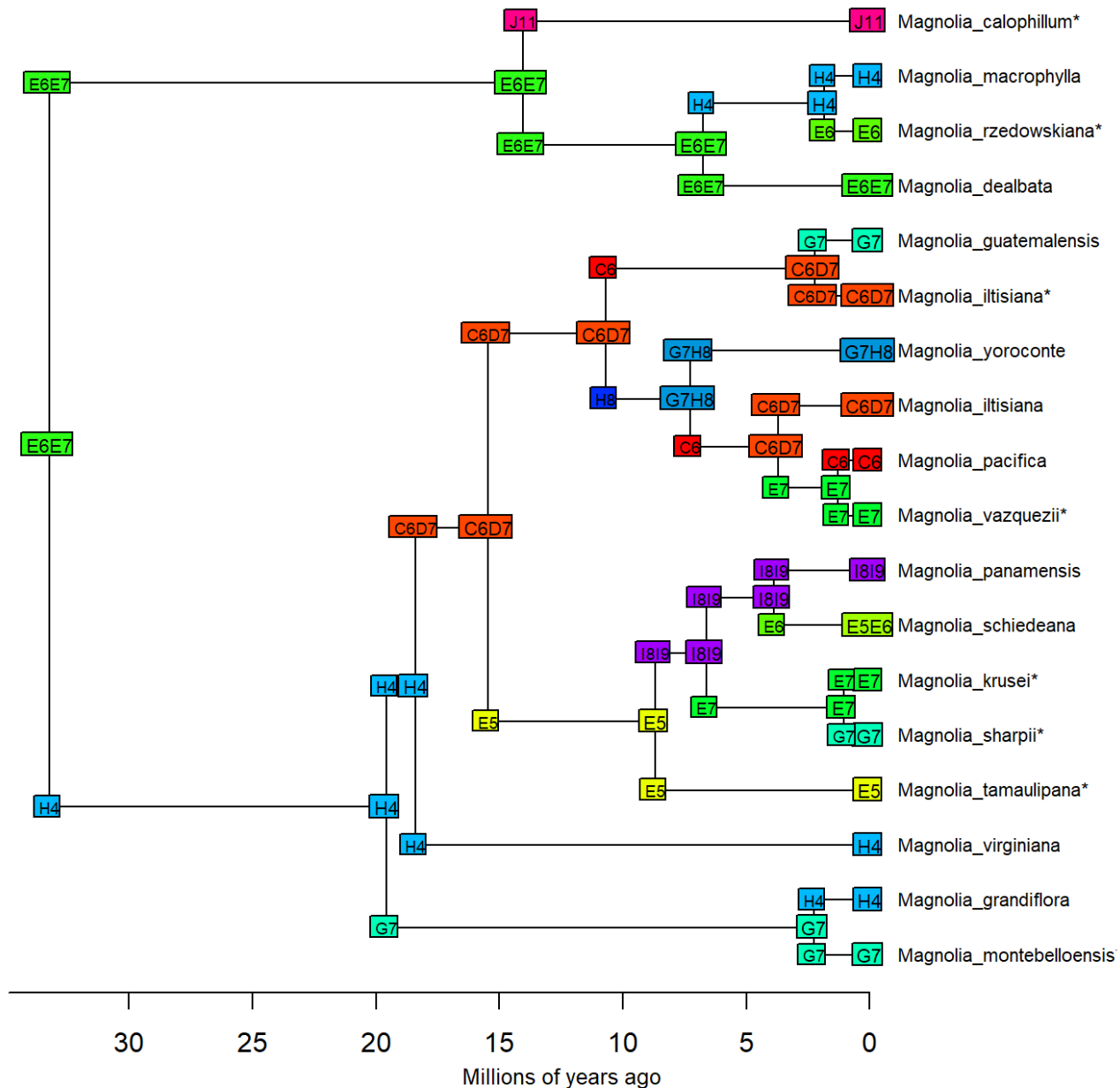


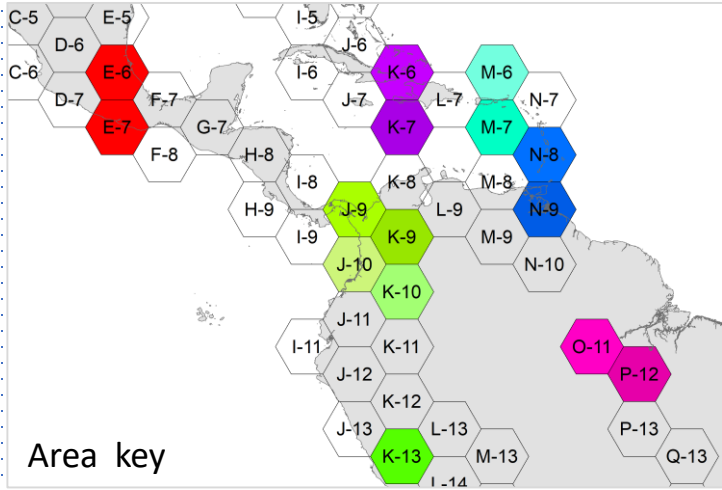


# Sections *Magnolia* & *Macrophylla*

## DEC-J

**BioGeoBEARS DEC+J on Magnolia subset 1**  
ancstates: global optim, 2 areas max. d=0.0043; e=0; j=1.3814; LnL=-61.02



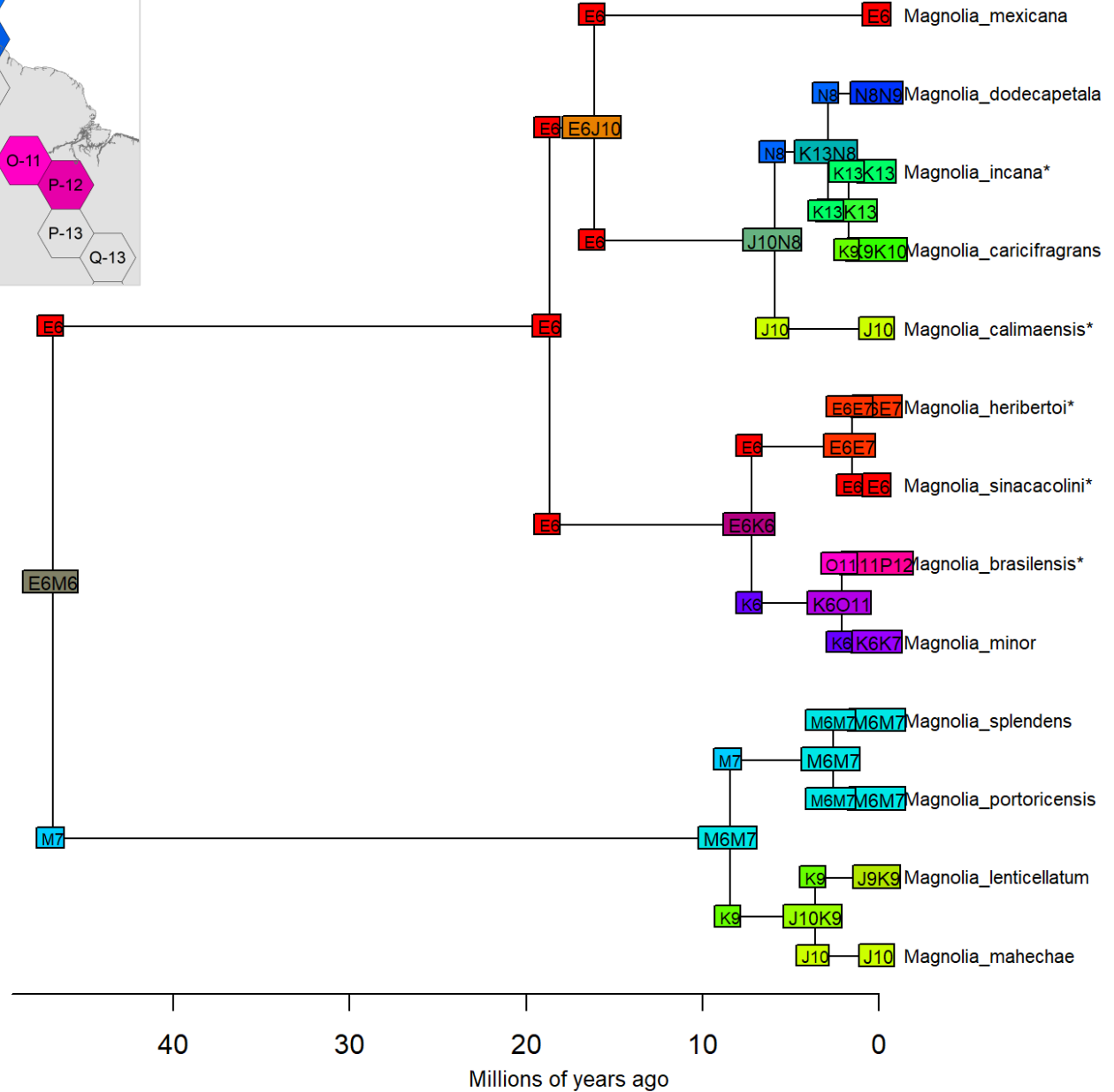


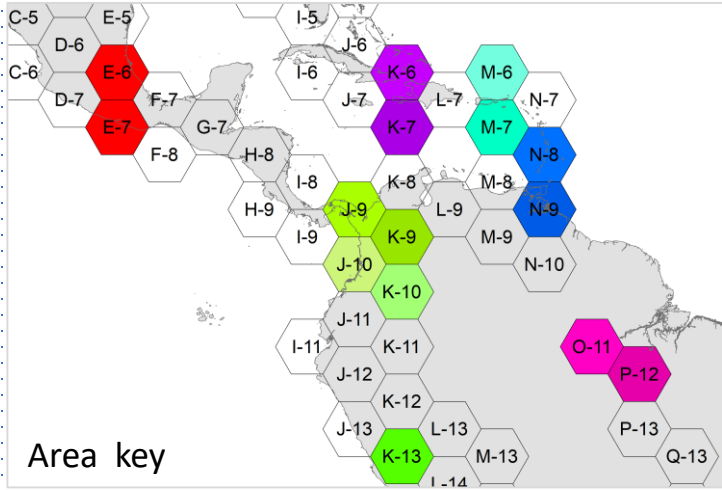
Area key

BioGeoBEARS DEC on Magnolia subset 2  
 ancstates: global optim, 2 areas max. d=0.0772; e=0.0789; j=0; LnL=-59.79

Section  
*Talauma*

DEC

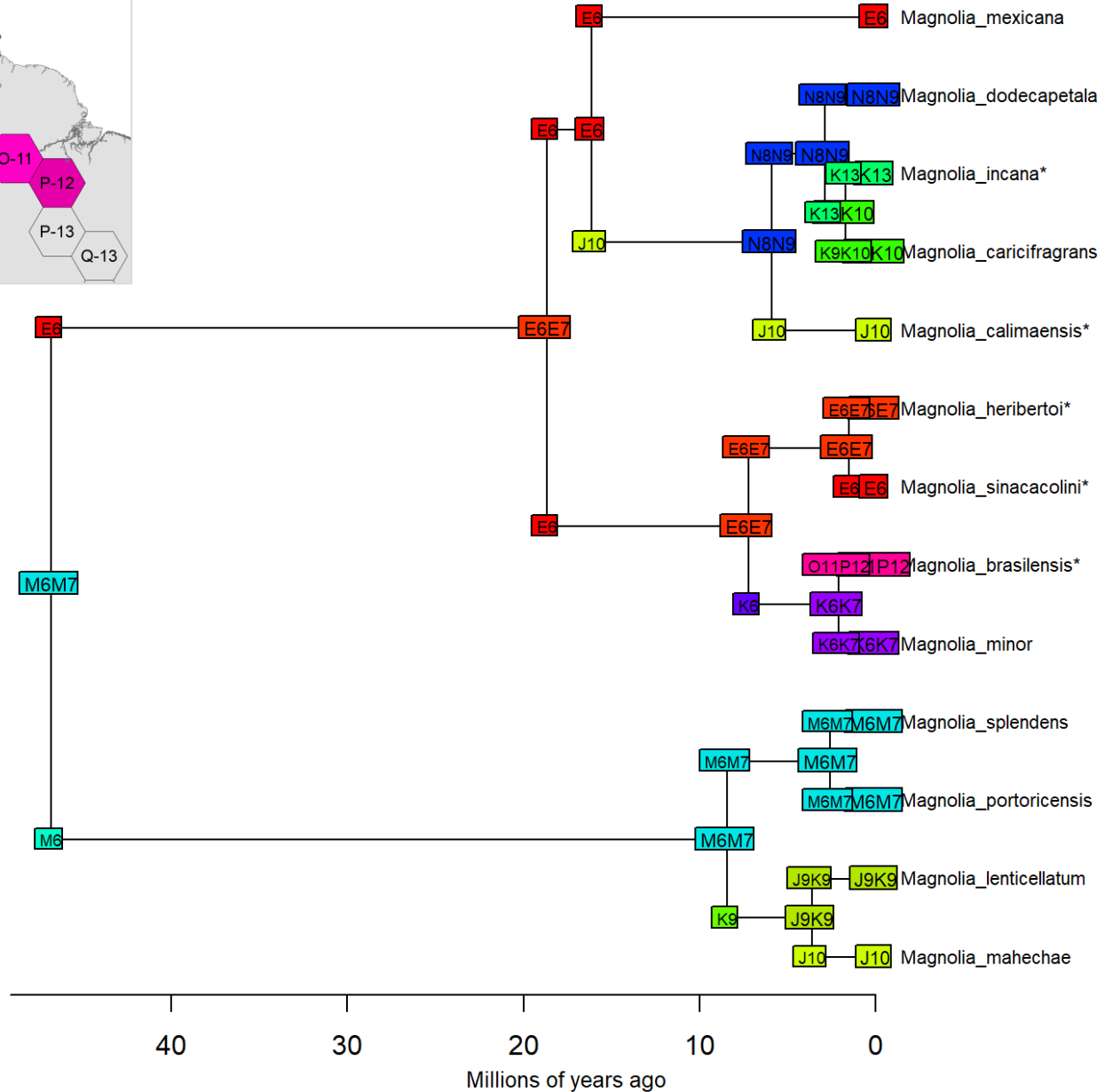




BioGeoBEARS DEC+J on Magnolia subset 2  
 ancstates: global optim, 2 areas max. d=0.0184; e=0.0151; j=0.3885; LnL=-56.51

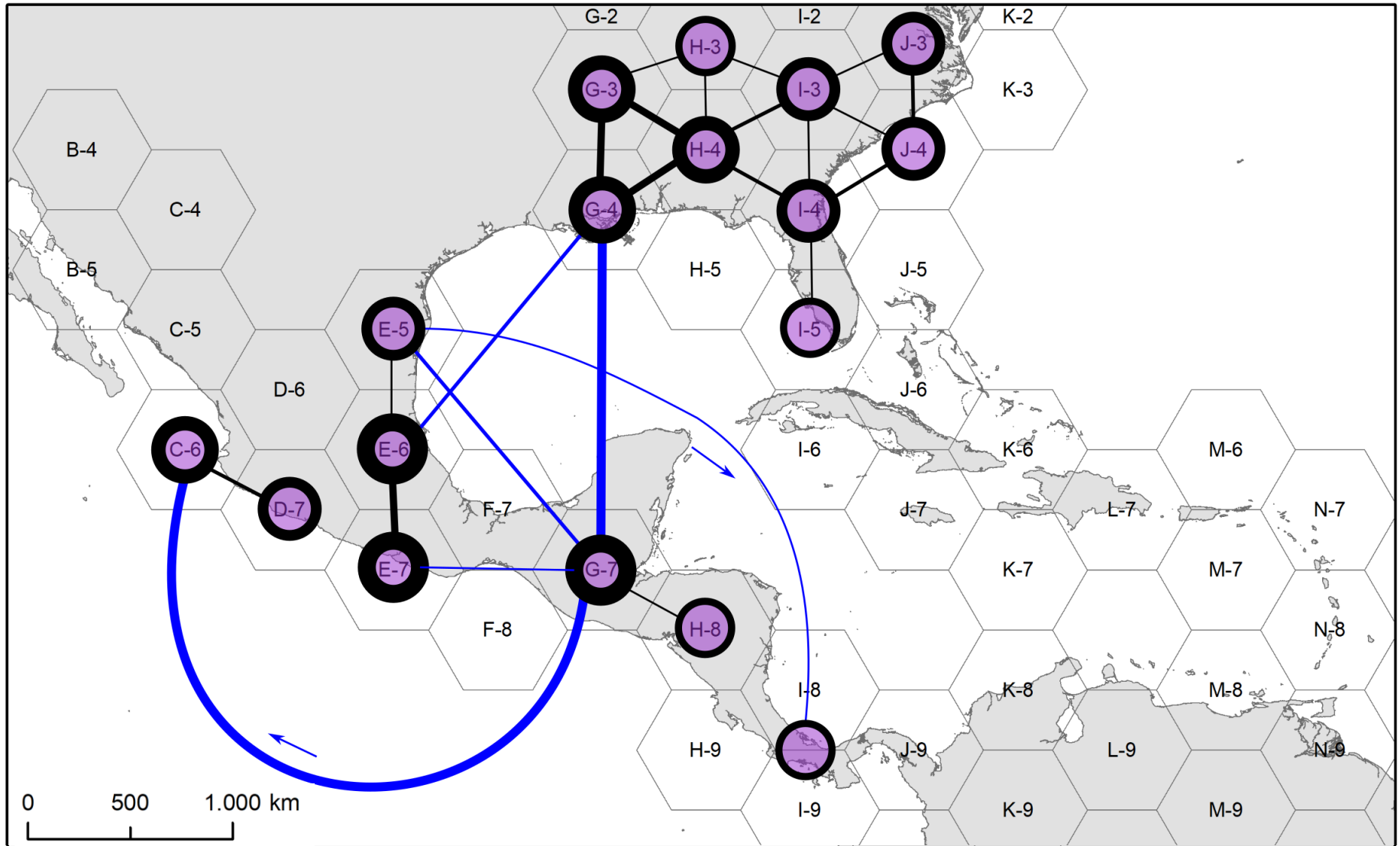
Section  
*Talauma*

DEC-J



# Sections *Magnolia* & *Macrophylla*

## Biogeographic affinities





# Section *Talauma* Biogeographic affinities

