



# Coarse woody debris density and elemental components by decay classes for ten tree species in Croatia

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# Background and method

## Importance of CWD

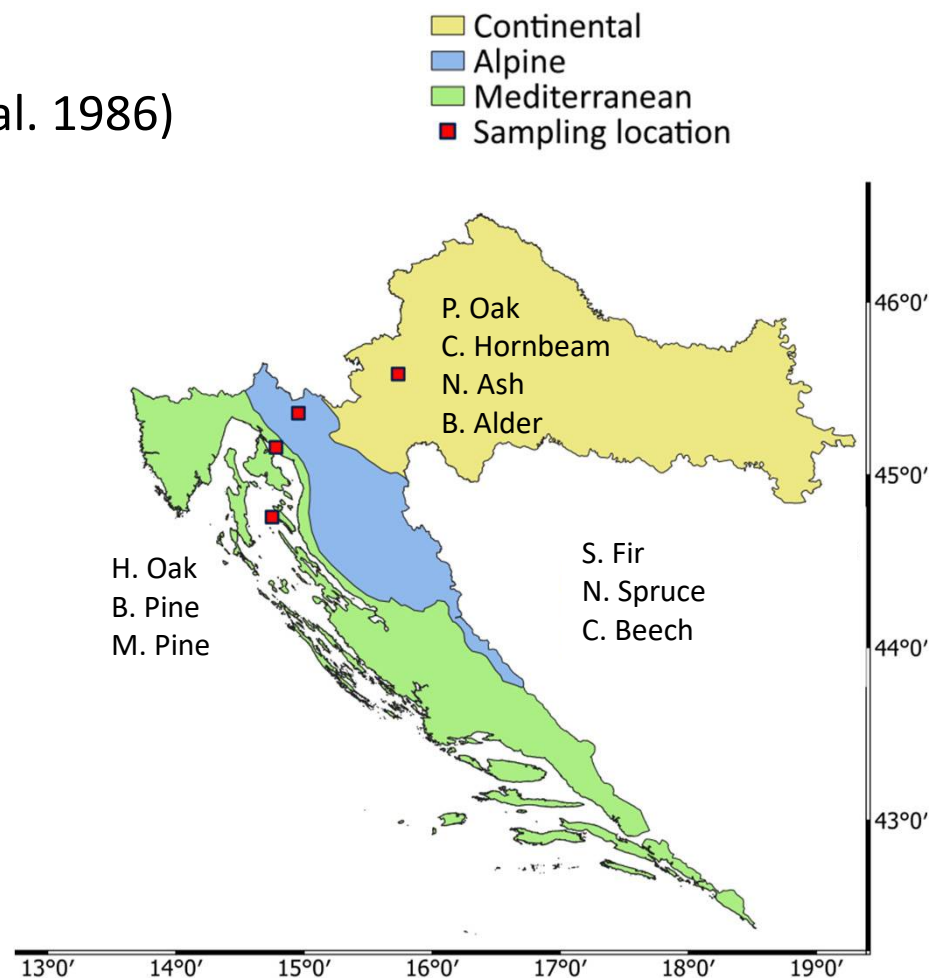
- Biodiversity
- Carbon storage (UNFCCC, EU regulations)

## CWD traits

- Density by decay classes (Harmon et al. 1986)
- C concentration
- Macronutrients (N, P, K, Ca, Mg)

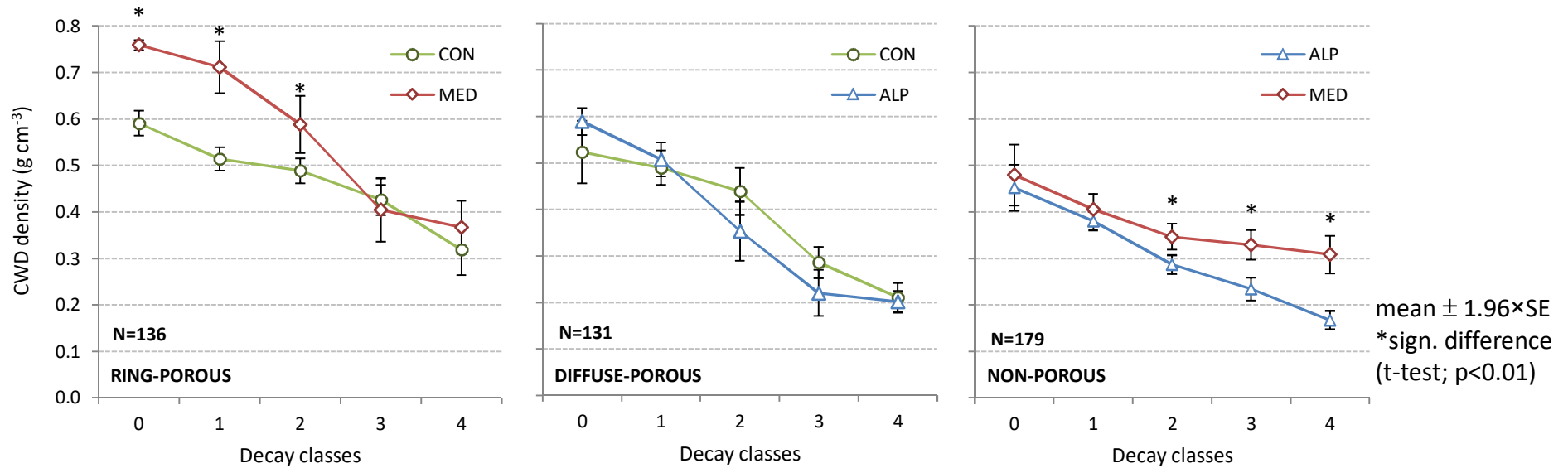
## Method

- Field experiments
- Meta-analysis for density
- TRY database



# Field experiment results

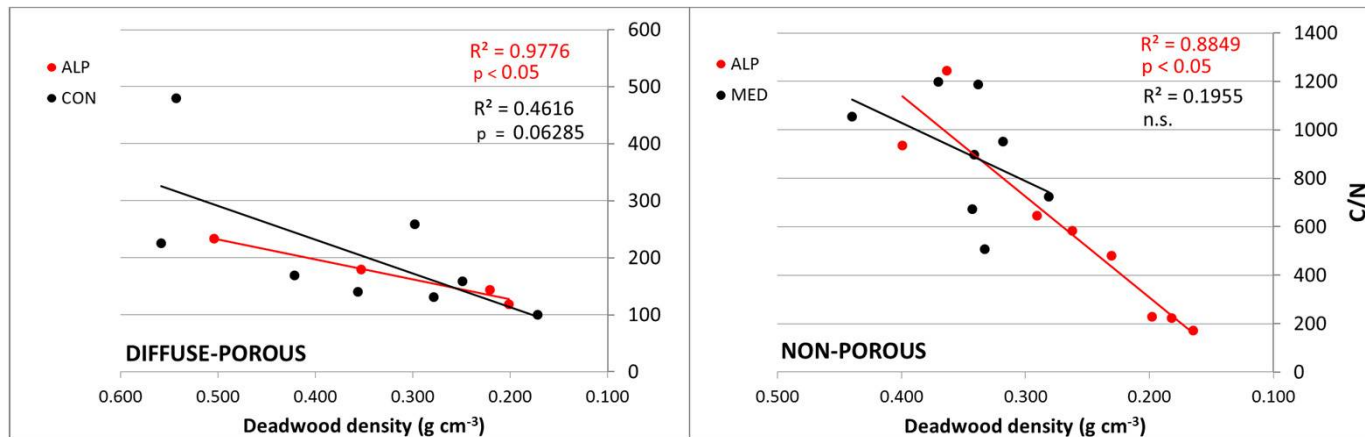
## CWD DENSITY (g cm<sup>-3</sup>)



## CWD C CONCENTRATION (%) (mean $\pm$ SE)

CONIFERS: 50.67  $\pm$  0.19

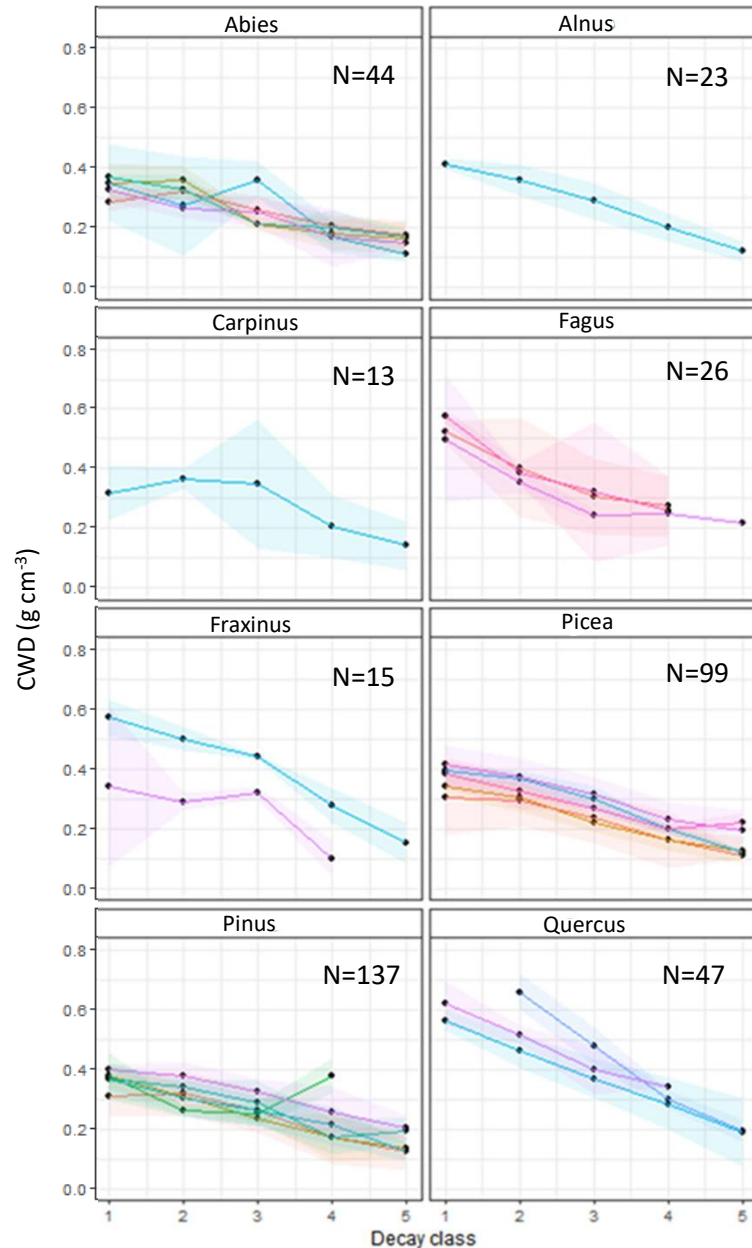
BROADLEAVES: 47.77  $\pm$  0.1



**DECREASE OF CWD C STOCKS FOR 27-44% COMPARED TO CURRENT NATIONAL ESTIMATES USED IN NIR\***

\*NIR – National Inventory Report to the UNFCCC

# Meta-analysis on CWD density



## GLOBAL CWD DENSITY DATABASE

- 68 studies
- 59 genera
- 105 tree species
- 10 UN FAO global ecological zones (FAO GEZ)
- 833 CWD densities

## META-ANALYSIS (meta R package)

- 8 selected genera
- 45 studies
- 39 tree species
- 8 global ecological zones
- 404 CWD densities
- metamean  $\pm$  95%CI

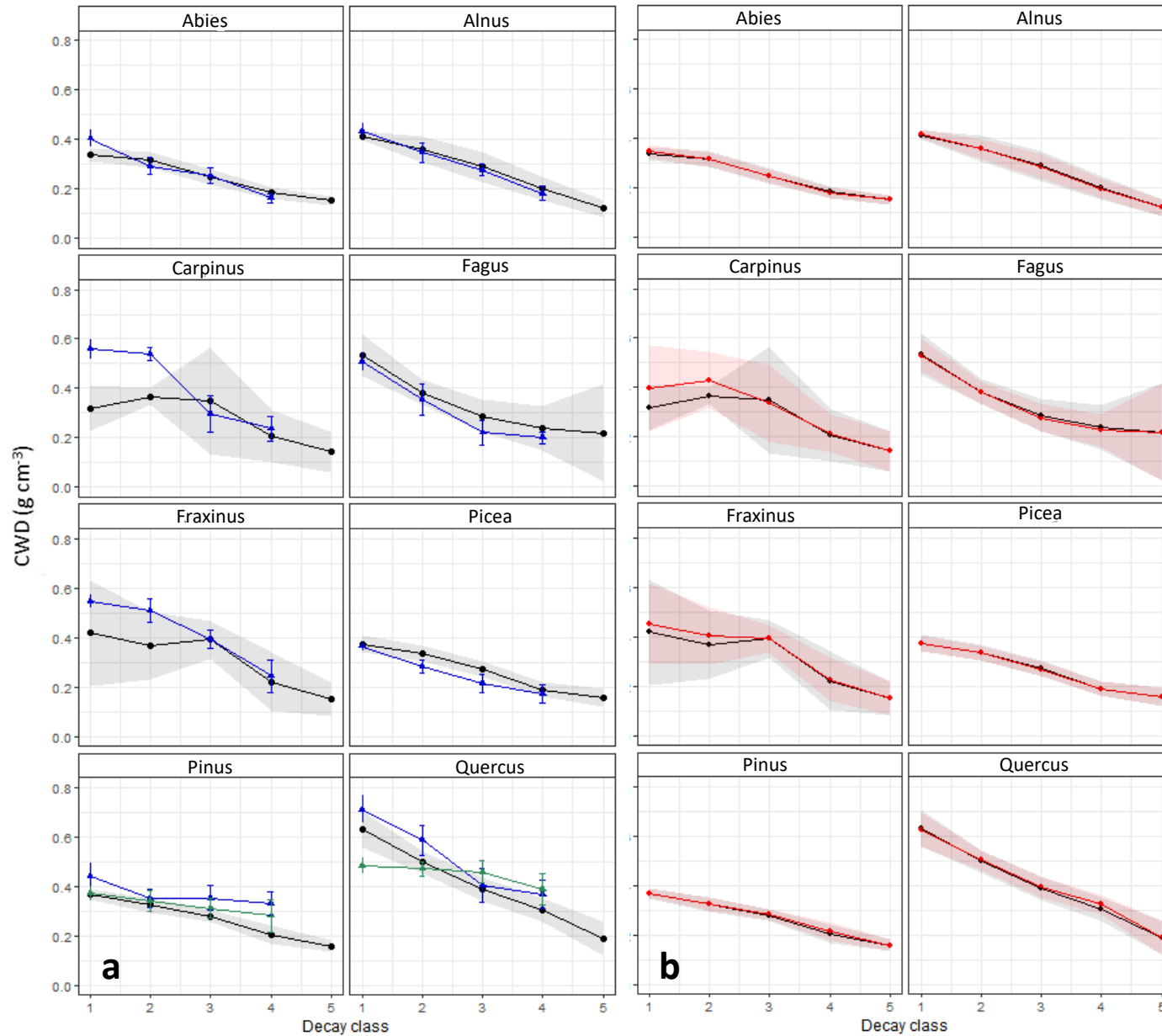
### Gl. Ecological Zones

- NA
- BOREAL CONIFER FORESTS
- SUBTROPICAL DECIDUOUS FORESTS
- SUBTROPICAL HUMID FORESTS (MEDIT. BGR)
- SUBTROPICAL MOUNTAIN SYSTEM
- TEMPERATE CONTINENTAL FORESTS (CONT. BGR)
- TROPICAL MOUNTAIN FOREST
- TEMPERATE MOUNTAIN SYSTEM (ALPINE BGR)
- TEMPERATE OCEANIC FOREST

- SOME GENERA ARE STILL UNDERREPRESENTED

- DIFFERENCES BETWEEN DIFFERENT GEZ FOR SOME GENERA

# CWD density database vs. our results



## TREE SPECIES IN OUR STUDY

- ◆ *Abies alba*
- ◆ *Alnus glutinosa*
- ◆ *Carpinus betulus*
- ◆ *Fagus sylvatica*
- ◆ *Fraxinus angustifolia*
- ◆ *Picea abies*
- ◆ *Pinus nigra*
- ◆ *Pinus pinaster*
- ◆ *Quercus ilex*
- ◆ *Quercus robur*

- ◆ LITERATURE
- ◆ LITERATURE & OUR STUDY

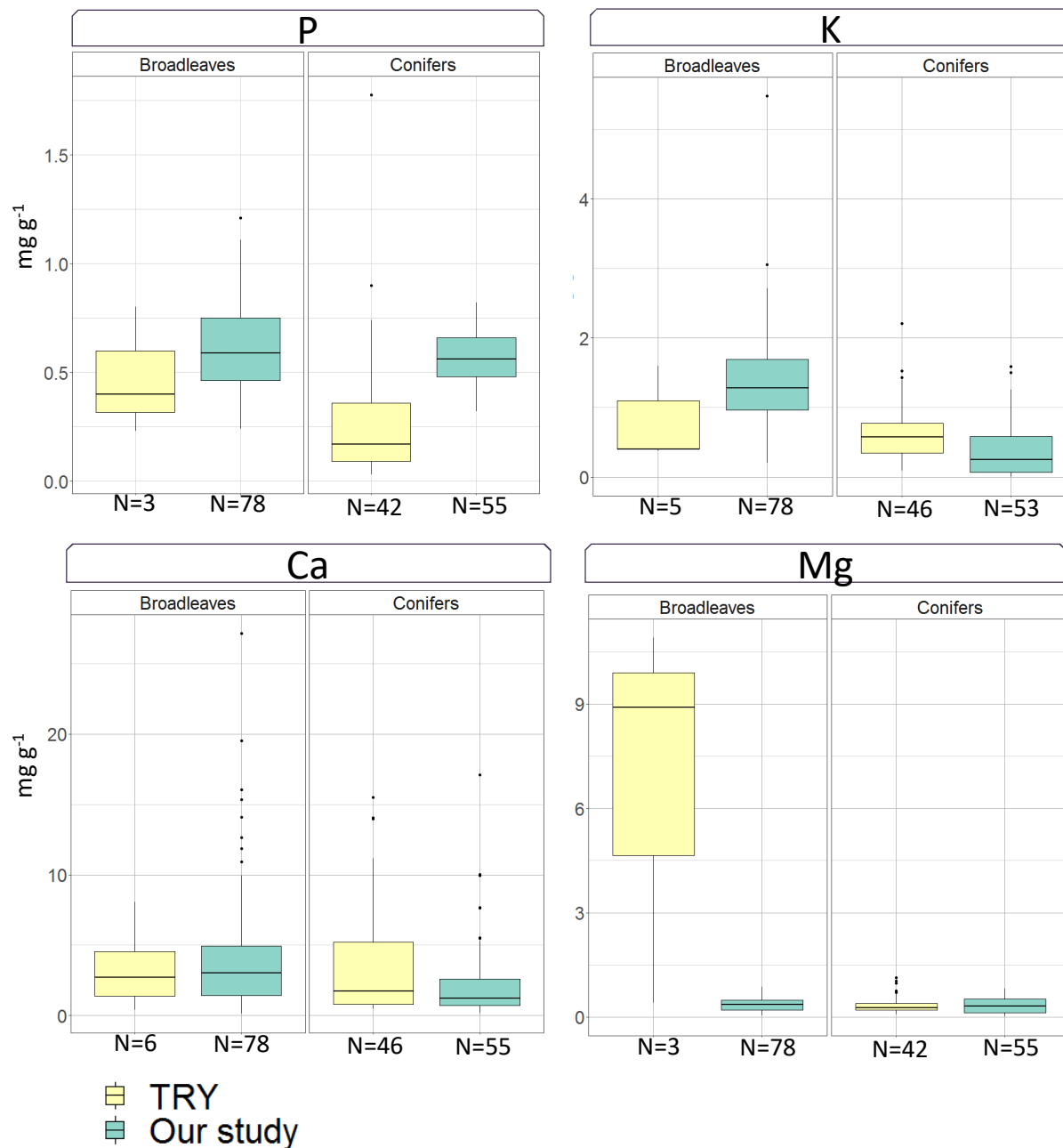
- FOR SOME GENERA LOCAL GROWING CONDITIONS ARE CRUCIAL

- NEED FOR NATIONAL CWD DENSITY DATA

COMPARISON

CONTRIBUTION

# Elemental components and TRY database



## TRY DATABASE

- CWD branch and stem density traits
- 11 tree species (few broadleaves)
- 193 content data

## OUR STUDY

- density by decay classes
- 10 tree species
- 530 content data

- DATA ON SOME ELEMENTS ARE UNDERREPRESENTED

- ROOM FOR POTENTIAL CONTRIBUTION TO TRY DATABASE?

- ESTIMATION OF NUTRIENT RELEASE DYNAMIC

THANK YOU FOR YOUR  
ATTENTION.

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