



Gunnera tinctoria **giant rhubarb**

Where & how might it be a threat?

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Botany & Plant Science, NUI,
Galway

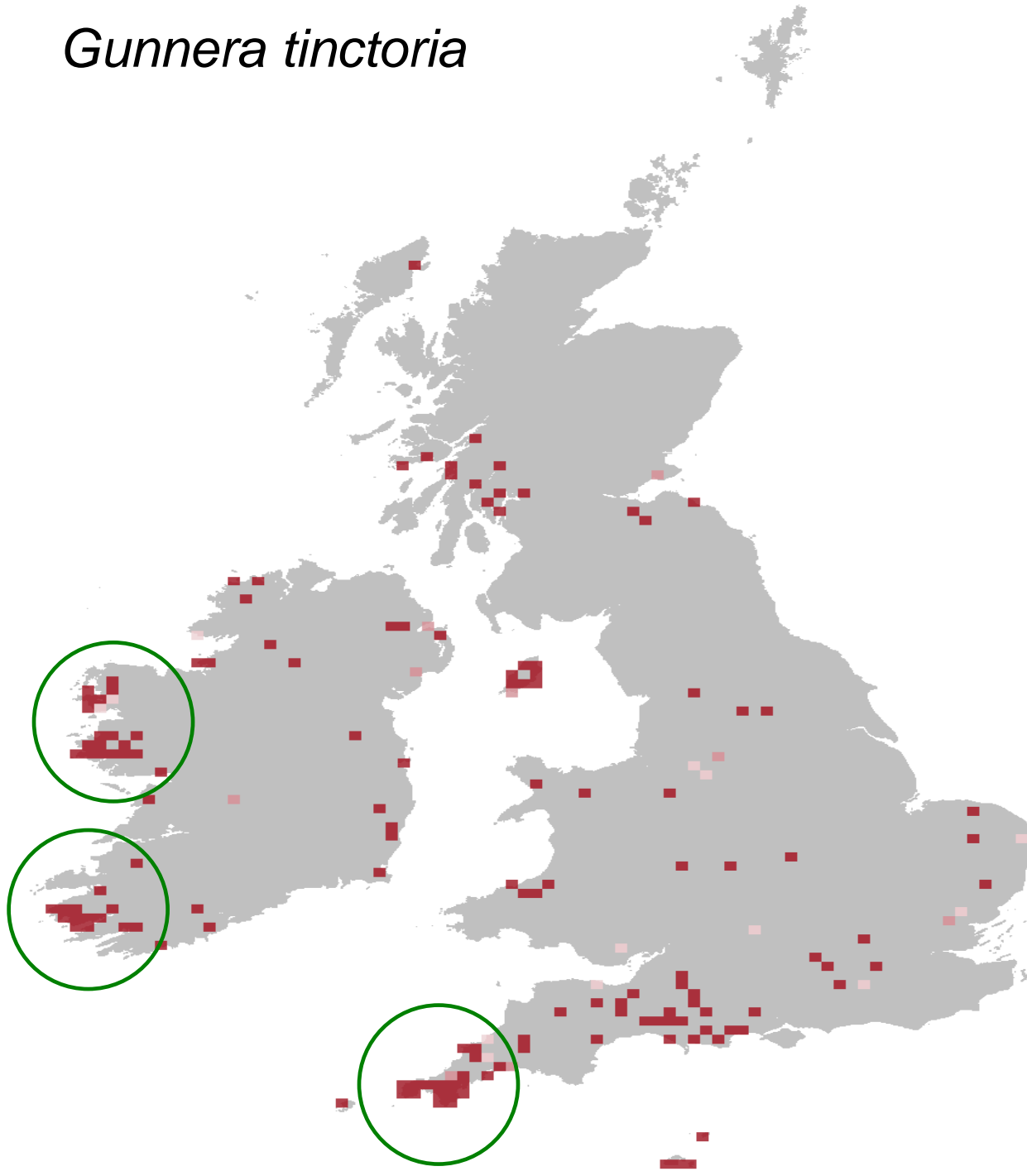
Gunnera tinctoria

- Native to S. America, especially countries of the Andes cordillera
- Common on unstable volcanic soils (Skewes et al. 2007), but also shady & humid, marshy, places (*Flora chilena*)

G. tinctoria in Britain & Ireland

- A popular Victorian garden plant
- Introduced to Britain in 1849; naturalising in early 1900s
- Popular in Irish gardens: Corraun Ho. near Achill; Kylemore Abbey, etc
- 1st recorded in Ireland as **naturalised** near Leenane and on Corraun peninsula, Mayo (R LI Praeger 1939)
- Now in 12 vice counties (Reynolds 2002)

Gunnera tinctoria



New Atlas of the Flora of Britain & Ireland

(Preston *et al.* 2001)

10 km x 10 km
squares:
red = non-native

It is prolific!

- Large spikes ca 1m long
- Produce >100,000 seeds
- In Ireland: potentially one plant can produce up to 700,000 individual seedlings (Osborne *et al.* 1991).



Seed capsules



Connemara: Inagh valley



Connemara: Ballynahinch



Achill



summer

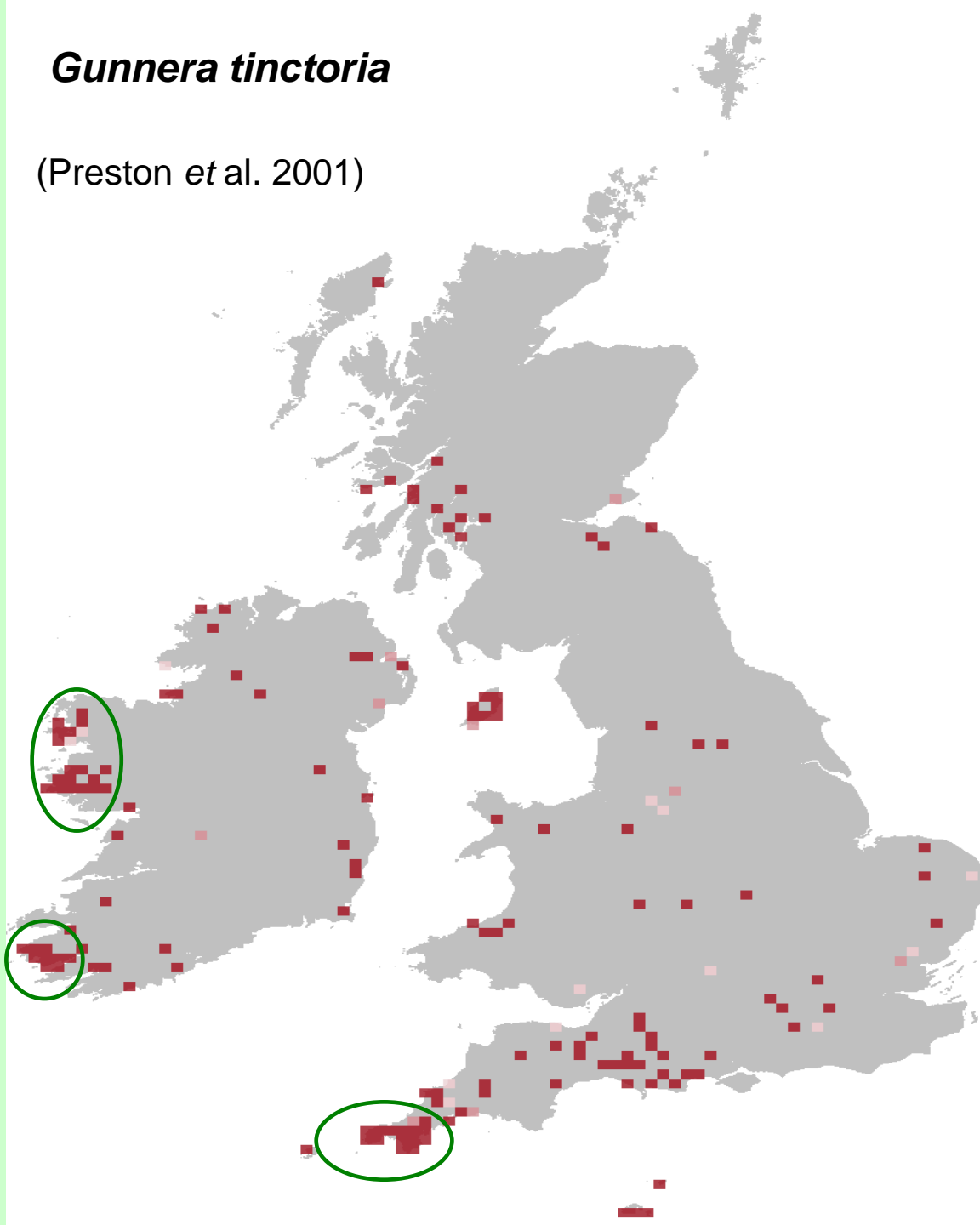
winter

Where does *G. tinctoria* cause a problem?

- Is it invasive wherever it occurs?
- Where should one be particularly careful about its spread?
- Is it invasive outside Ireland?
- - In Azores and New Zealand

Gunnera tinctoria

(Preston *et al.* 2001)



It is particularly frequent in the W and SW

- But in Cornwall, it is confined to water-courses and not a 'problem' (yet?)

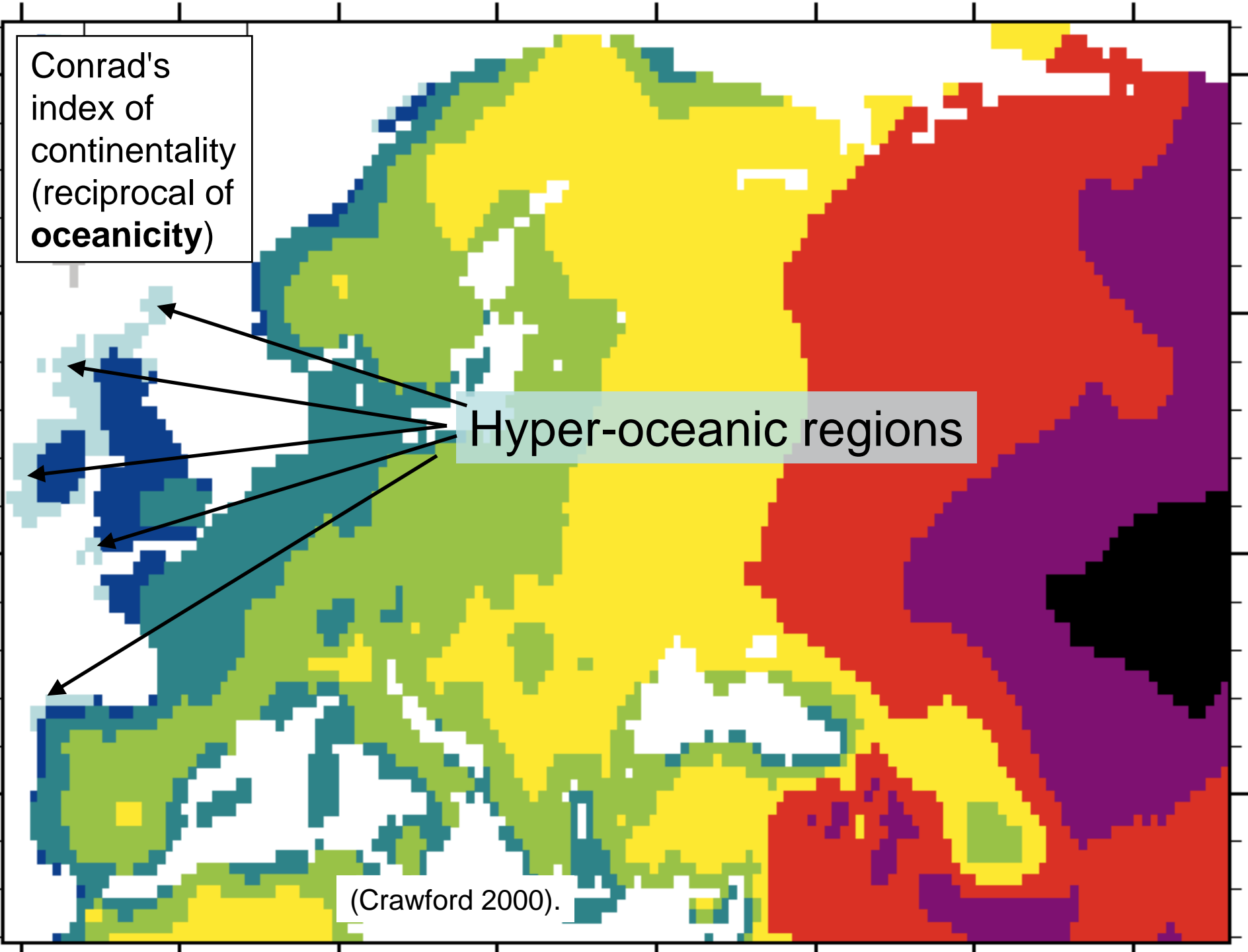
Climate favourable to *G. tinctoria*

- Its invasiveness particularly in W of Ireland
- Its dying back with winter frosts
- Its occurrence in drains and along river courses
- → all imply it needs constant moisture and a low incidence of frosts

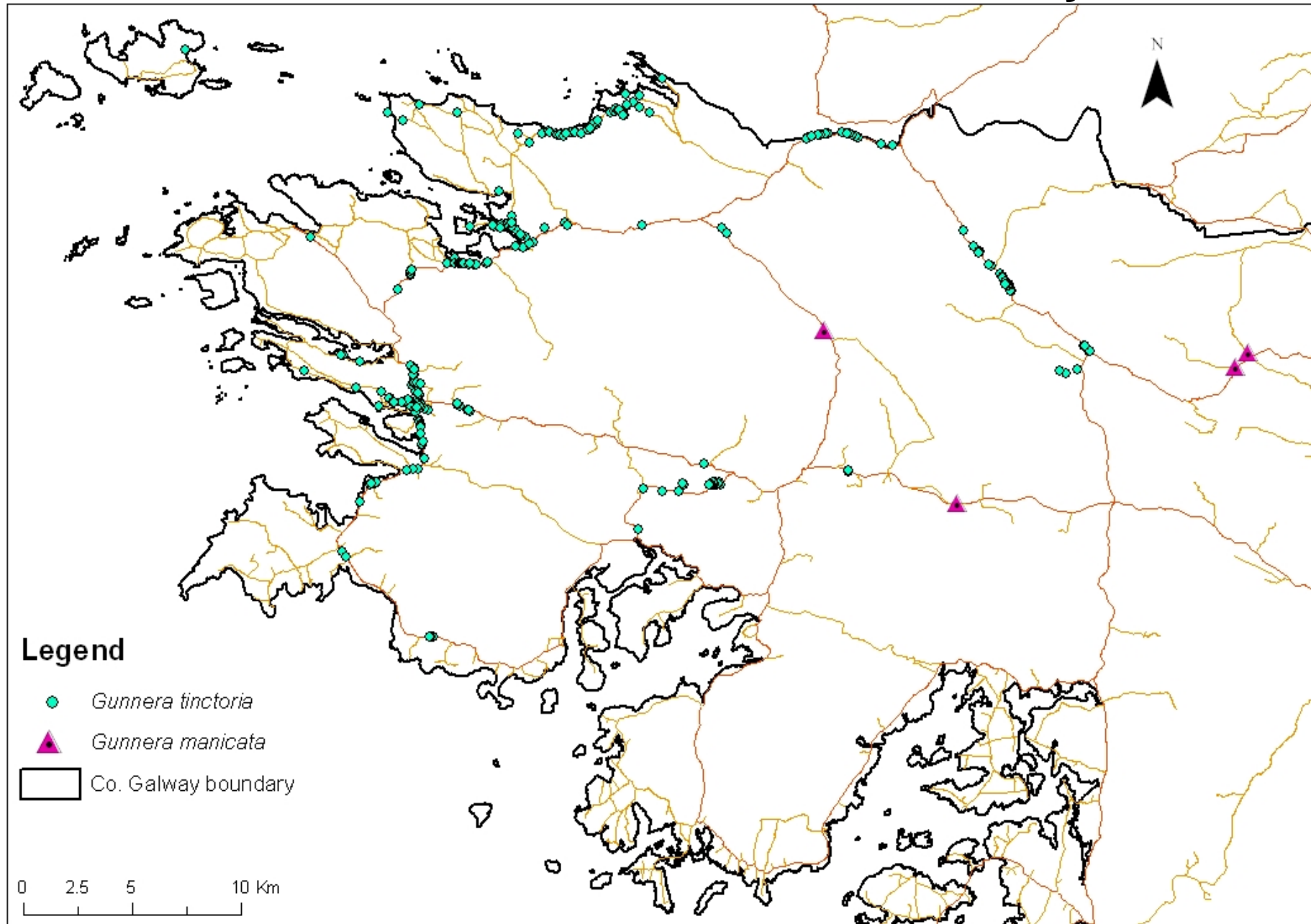
Conrad's
index of
continentality
(reciprocal of
oceanicity)

Hyper-oceanic regions

(Crawford 2000).



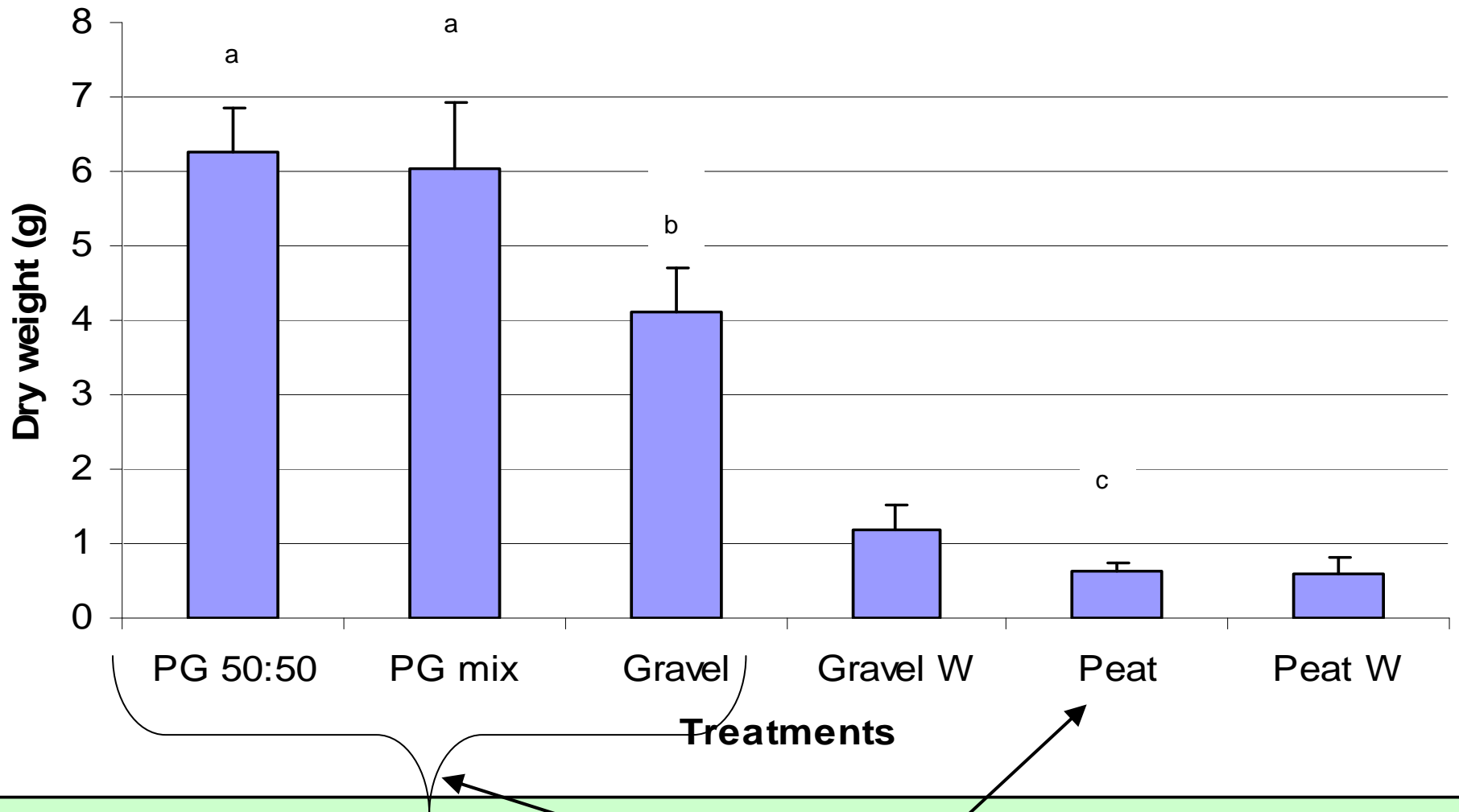
Occurrence of *Gunnera* in Co Galway



(Sheehy Skeffington & Hall 2011)

G. tinctoria in Galway is confined to Connemara

- The soils are acidic
- The soils are wet and poorly drained
- The climate is wetter: >200 rain days per year
- The winters are milder than further east
- Some or all of these combine to favour its occurrence within 20km of the sea



Results of growing *G. tinctoria* in free-draining and waterlogged (W) soils

(Sheehy Skeffington & Hall 2011)

G. tinctoria

- It does not grow well in waterlogged soils
- Its prevalence along water-courses is because flowing water is more oxygenated
- It was not seen in deep (intact) peat bogs
 - as these also lack water flow

How did *G. tinctoria* suddenly become a problem?

- Or did it?
- It has been known to be seriously invasive on Achill for ca 20yrs
- But it only seems to have expanded in Connemara since 1990s
- Its rapid spread along N Connemara roadsides was aided by one factor
- The spreading of gravel from a quarry where its population had suddenly exploded

Guy's Quarry, Letterfrack

June 2006



Guy's Quarry, Letterfrack

March 2009



Photos: E O'Riordan 2009



Photo: K. Hall July 2006

So why did it take over the quarry?

- Mild winters from ca 1995 onwards may have stopped frosts keeping it locally in check (Sheehy Skeffington & Hall 2011)
- It may also have genetically evolved to adapt over the last 100+ years to its host environment (Fennell *et al.* 2010)
- NB it has not obviously died off in Connemara during the recent severe winters
- It continues to set hundreds of seedlings (even seedlings survived the winters)



Eradication?

2008 & 2009: assiduous eradication programme in Leenane (Marchant 2008; Wade 2009)

2009 & 2010:
Connemara roads treated around Letterfrack, including Guys quarry (O'Riordan 2009)



Treated *Gunnera* Leenane, Sept 2008 (Wade 2009)

In Mayo also –and both Co Cos have produced information leaflets

My advice!

- Learn to identify and monitor it
- If you are not in a west-coast county, it might not be a problem
 - Or may not be *G. tinctoria* and therefore not a problem!
- Seek advice before spraying (Roundup)
- Check if it is very abundant nearby or in similar region
 - thus a single (few?) plant(s) on Inis Bofin should be eradicated before they take hold

Other species it can be confused with:

*Petasites
hybridus*
butterbur



G. manicata Brazilian rhubarb is very similar, but is **not** invasive

– However, this might change

How to tell the *Gunnera* species apart?



G. manicata

(send me a photo of the summer spike with location!
micheline.sheehy@nuigalway.ie)



G. manicata



G. tinctoria

Summary

- Only *G. tinctoria* is invasive (though *G. manicata* is on New Zealand red alert list)
- So far it is only a threat in the extreme west (NW Connemara, Achill and surrounds)
- It may become invasive in (coastal) SW Ireland and in Donegal, so should be monitored
- Consult with NPWS and follow regional or national guidelines (e.g. Armstrong *et al* 2009; O'Riordan 2009)
- Where it is invasive, **avoid any spreading of soil material** where it has become established
- Where it is not invasive, no action is necessary: herbicides are noxious and expensive!

Thank you!

