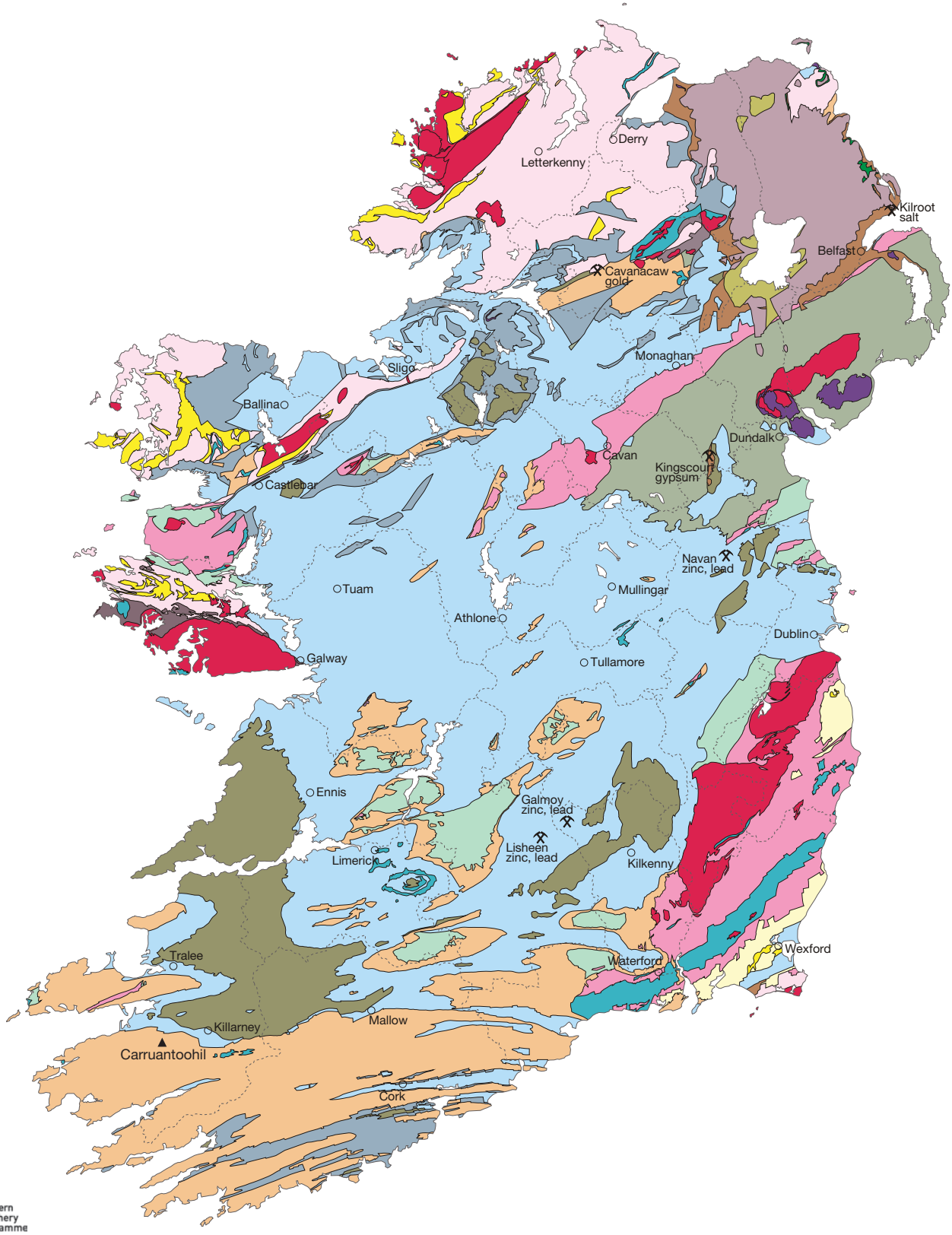
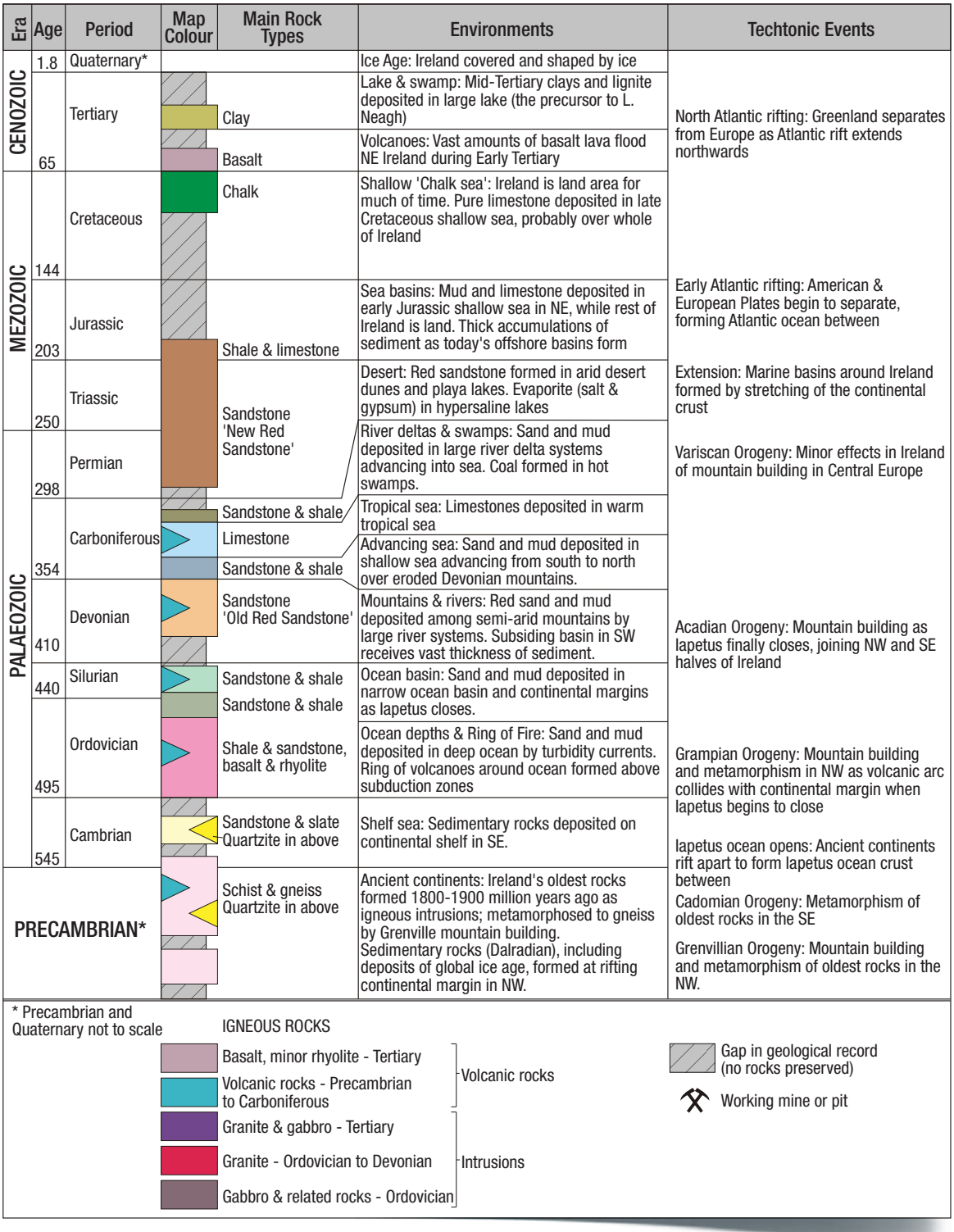
Map 2 Bedrock geology map of Ireland



Clay (35 Ma)
Basalt (60 Ma)
Granite/Gabbro (<65 Ma)
Chalk (70 Ma)
Sandstone (220 Ma)
Sandstone/Shale (318 Ma)
Limestone (330 Ma)
Sandstone (380 Ma)
Sandstone/Shale (420 Ma)
Granite (450–400 Ma)
Gabbro (450 Ma)
Shale/Sandstone (460 Ma)
Sandstone/Slate (520 Ma)
Schist/Marble/Gneiss (>540 Ma)
Volcanics (>300 Ma)

Ma = Millions od years

Need
Northern Environmental Education Development
Northern Periphery Programme 2007–2013
European Union
European Regional Development Fund
theBurren connect project
Shannon Development Delivering a Better Future
GSI


Era
Age
Period
Map Colour
Main Rock Types
Environments
Techtonic Events
CENOZOIC
MEZOZOIC
PALAEOZOIC
PRECAMBRIAN*
1.8
65
144
203
250
298
354
410
440
495
545
Quaternary*
Tertiary
Cretaceous
Jurassic
Triassic
Permian
Carboniferous
Devonian
Silurian
Ordovician
Cambrian
Clay
Basalt
Chalk
Shale & limestone
Sandstone 'New Red Sandstone'
Sandstone & shale
Limestone
Sandstone & shale
Sandstone 'Old Red Sandstone'
Sandstone & shale
Sandstone & shale
Shale & sandstone, basalt & rhyolite
Sandstone & slate
Quartzite in above
Schist & gneiss
Quartzite in above
Ice Age: Ireland covered and shaped by ice
Lake & swamp: Mid-Tertiary clays and lignite deposited in large lake (the precursor to L. Neagh)
Volcanoes: Vast amounts of basalt lava flood NE Ireland during Early Tertiary
Shallow 'Chalk sea': Ireland is land area for much of time. Pure limestone deposited in late Cretaceous shallow sea, probably over whole of Ireland
Sea basins: Mud and limestone deposited in early Jurassic shallow sea in NE, while rest of Ireland is land. Thick accumulations of sediment as today's offshore basins form
Desert: Red sandstone formed in arid desert dunes and playa lakes. Evaporite (salt & gypsum) in hypersaline lakes
River deltas & swamps: Sand and mud deposited in large river delta systems advancing into sea. Coal formed in hot swamps.
Tropical sea: Limestones deposited in warm tropical sea
Advancing sea: Sand and mud deposited in shallow sea advancing from south to north over eroded Devonian mountains.
Mountains & rivers: Red sand and mud deposited among semi-arid mountains by large river systems. Subsiding basin in SW receives vast thickness of sediment.
Ocean basin: Sand and mud deposited in narrow ocean basin and continental margins as Iapetus closes.
Ocean depths & Ring of Fire: Sand and mud deposited in deep ocean by turbidity currents. Ring of volcanoes around ocean formed above subduction zones
Shelf sea: Sedimentary rocks deposited on continental shelf in SE.
Ancient continents: Ireland's oldest rocks formed 1800-1900 million years ago as igneous intrusions; metamorphosed to gneiss by Grenville mountain building.
Sedimentary rocks (Dalradian), including deposits of global ice age, formed at rifting continental margin in NW.
North Atlantic rifting: Greenland separates from Europe as Atlantic rift extends northwards
Early Atlantic rifting: American & European Plates begin to separate, forming Atlantic ocean between
Extension: Marine basins around Ireland formed by stretching of the continental crust
Variscan Orogeny: Minor effects in Ireland of mountain building in Central Europe
Acadian Orogeny: Mountain building as Iapetus finally closes, joining NW and SE halves of Ireland
Grampian Orogeny: Mountain building and metamorphism in NW as volcanic arc collides with continental margin when Iapetus begins to close
Iapetus ocean opens: Ancient continents rift apart to form Iapetus ocean crust between
Cadomian Orogeny: Metamorphism of oldest rocks in the SE
Grenvillian Orogeny: Mountain building and metamorphism of oldest rocks in the NW.
* Precambrian and Quaternary not to scale
IGNEOUS ROCKS
Basalt, minor rhyolite - Tertiary
Volcanic rocks - Precambrian to Carboniferous
Volcanic rocks
Granite & gabbro - Tertiary
Granite - Ordovician to Devonian
Gabbro & related rocks - Ordovician
Intrusions
Gap in geological record (no rocks preserved)
Working mine or pit