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The new Rare Arable Flowers App:
identifying, recording and
conserving one of our most
threatened plant groups





Rare arable plants

- Arable species now rare were common in traditional farming systems

Percentage occurrence in fields (Brenchley, 1920)							
Species	Wheat	Barley	Oats	Roots	Seeds	Peas/beans	All
Dwarf spurge	13	18	12	5	12	10	11
Shepherd's-needle	22	18	15	3	5	10	12
Corn chamomile	4	2	2	0.5	12	0	3
Corn spurrey	13	17	34	23	7	24	19
Corn buttercup	12	2	3	1	1	7	4

- Some were once considered serious weeds:
 - Corn spurrey – ‘greatest bugbear in the shape of weeds that farmers have to deal with on sandy land’
 - Greater yellow rattle – ‘attacks the cereal crops and does much mischief’

Some were quite unpopular...



Photo lent by

(Imper. Chem. Ind.

- 'Corn buttercup was completely annihilated by a 10 per cent. solution' (Long & Brenchley 1946)
- Was also used against corn chamomile, corn marigold, corn spurrey, poppies etc.



Photograph taken a short time after the Corn Buttercup (in Winter Wheat) had been sprayed with a 13.5 per cent. solution of Sulphuric Acid (equal to 10 per cent B.O.V. on a volume-volume basis). *Left* : Sprayed. *Right* : Unsprayed.

Effects of intensive farming

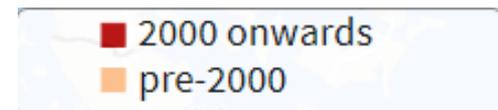
- Post-war agricultural intensification caused rapid decline of many plant spp. adapted to traditional farming (Wilson & King 2003; Albrecht et al. 2016)
 - 1) Synthetic herbicides
 - 2) Increased crop competition
 - high levels of fertiliser
 - competitive modern crop varieties
 - 3) Seed cleaning (e.g. corncockle)
 - 4) Drainage (e.g. mousetail)
 - 5) Mechanisation & land consolidation

→ 28% arable spp. on England Red List (Stroh et al. 2014)

→ Remaining populations often small & isolated!



Source: <http://bsbi.org/maps>



Wilson & King (2003) *Arable plants – a field guide*. WILDGuides, Old Basing

Albrecht, Cambecèdes, Lang & Wagner (2016) *Management options for the conservation of rare arable plants in Europe*. *Botany Letters*: 389-415

Stroh, Leach, August, Walker, Pearman, Rumsey, Harrower, Fay, Martin, Pankhurst, Preston & Taylor (2014) *Vascular plant red list for England*. BSBI, Bristol.



Conserving rare arable plants for future generations

- Rare arable plants are an important part of our cultural heritage!
 - Diverse arable plant communities = foundation of agro-ecological food webs!
 - Historically, the conservation of rare arable plants has had low priority
 - Potential reasons for this:
 - Some species used to be harmful weeds
 - Many non-native; e.g. from S Europe, Middle East (Salisbury 1961; Wilson & King 2003)
 - A return to traditional farming is unlikely!
- Challenge: Maintain niche for rare species in ‘hostile’ farming environment!
- Mix of ‘land-sharing’ & ‘land sparing’ approaches! (Albrecht et al. 2016)

Salisbury (1961) Weeds and Aliens. Collins, London.

Wilson & King (2003) Arable plants – a field guide. WILDGuides, Old Basing

Albrecht, Cambecèdes, Lang & Wagner (2016) Management options for the conservation of rare arable plants in Europe. Botany Letters: 389-415

Some key requirements for their conservation

- Conservation planners and ecological scientists require detailed & up-to-date information on locations and sizes of existing populations!
- Farmers/agronomists must have ready access to relevant information both on how to recognise rare arable species and on how to sympathetically manage their land if they do have such species on it
- The profile of rare arable plants must be raised in the farming community & public!





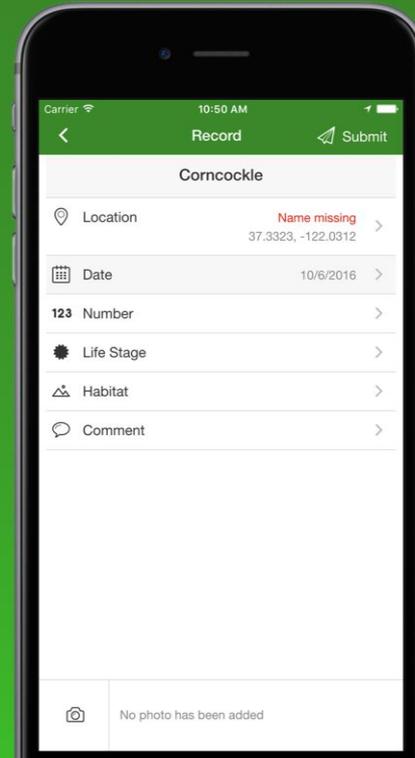
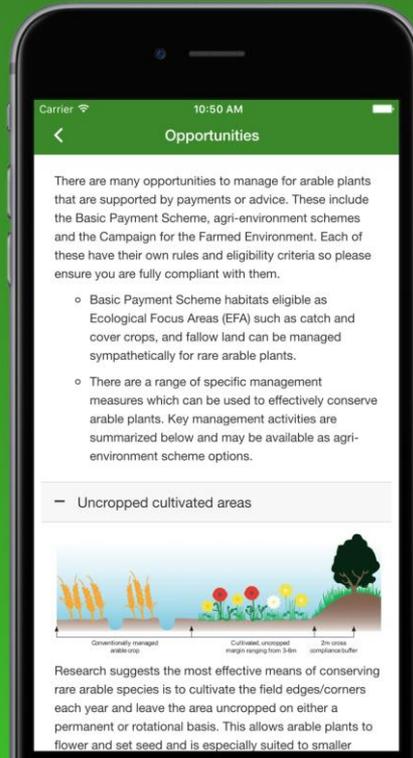
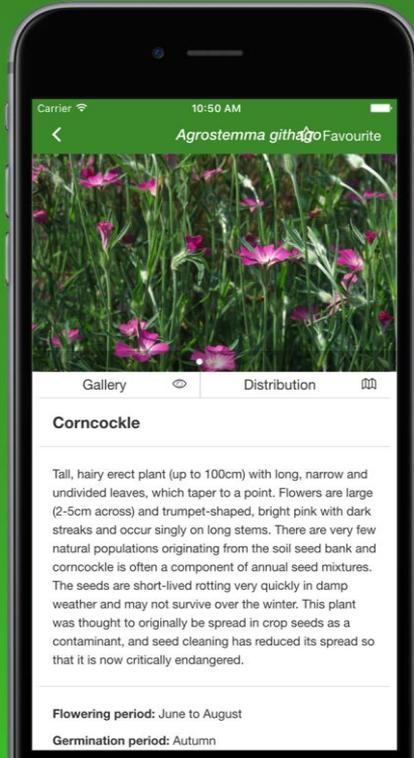
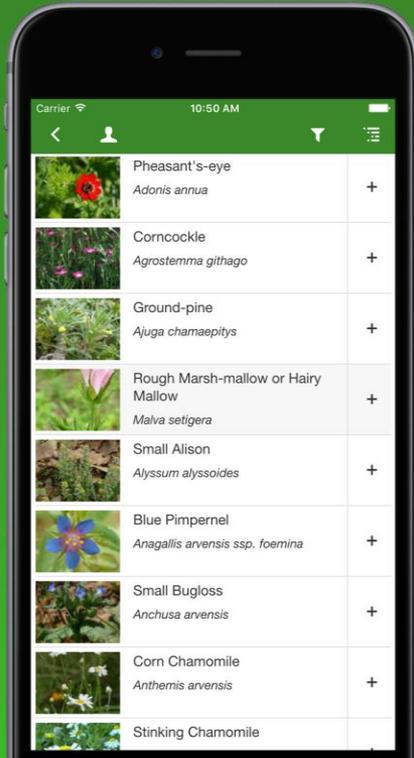
Rare Arable Flowers

Rare arable species

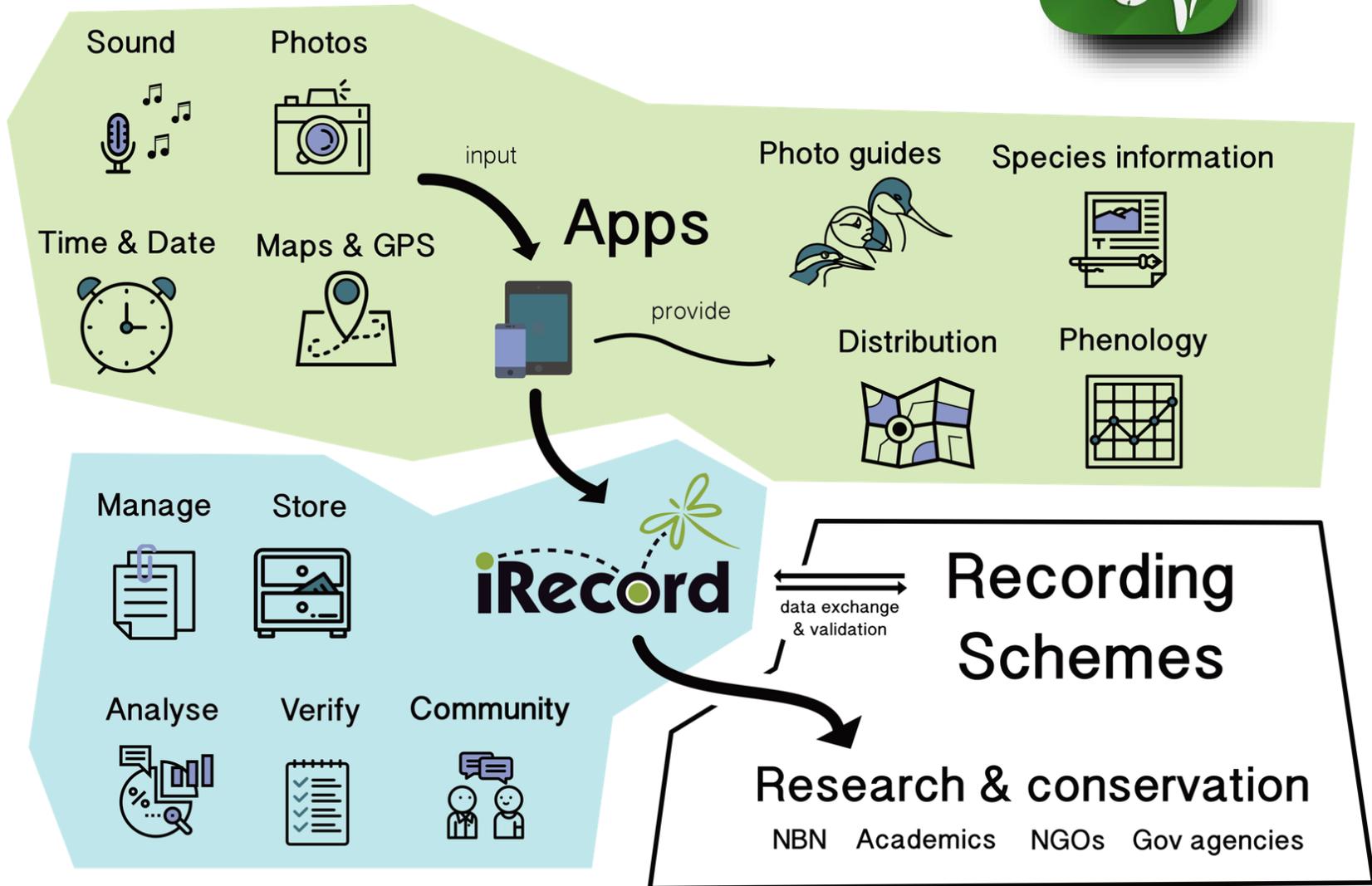
Plant descriptions

Management advice

Recording



Data flow



Mobile Apps



iRecord App



iRecord Butterflies



iRecord Ladybirds



iRecord Dragonflies



iRecord Grasshoppers



Rare Arable Flowers



Plant Tracker



Sealife Tracker



Aqualnaders



Lichen App
(nitrogen pollution)



NPMS App



Wetland Tool



iRecord Crops



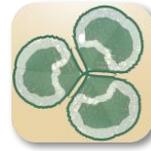
Asian Hornet Watch



New Year Plant Hunt



Mammal Tracker



ICP Vegetation
(air pollutants)



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