Emptied, not empty:
21st Century wild land in a 19th Century cultural landscape

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Outline

• Historical patterns of wild land in Scotland
• Data sources
• Method
• Analysis and results
• Discussion
• Conclusions
Historical patterns

• Assertion: contemporary patterns of wildness in Scotland are underlain by a rich cultural history of subsistence agriculture and later settlement desertion
  – The Highland Clearances 1760-1860
  – A period of resettlement/migration for sheep farming/sporting estates
  – Landscape as “Emptied, not empty” (Aitken et al., 1996)

• Counter assertion: pre-Clearance settlement pattern influenced by environmental factors (climate, soil, topography)
  – Settlement favoured alluvial soils in valley floors (Davis, 2007)
  – Some areas have always been “wild land” (Smout, 2000)
Artistic reconstruction
Archaeological evidence
Landscape evidence
Data sources

• Royal Commission on the Ancient and Historical Monuments of Scotland
  – Point data set (n~42,000)
  – Attributes:
    • Post-medieval
    • Roofless in 1860
    • Roofed in 1860
Data sources

- Wildness attributes
  - Remoteness: settlement and access
  - Naturalness: apparent and biophysical
Wild land patterns

Map 3 Search areas for wild land

This map does not show in detail all areas. It is a search area map which is likely to encourage all the right kind of use, although this is not comprehensive of all the smaller areas which might be identified as having wild land character. For a fuller explanation of the purpose and scope of this map, please refer to paragraphs 19 of Annex 1 to the Code which is deposited with the Secretary of State for Scotland.

Wild land continuum
Based on combination of standardized maps
(Standardized scale)

km
100.00

0

13

26

39

52

65

78

91

104

116

129

142

155

168

181

194

>=207

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Visual comparisons

Figure 4. Wild land and indicative search areas

Legend
- Wild land
- SNH indicative search areas

Figure 8. Wild land and crofting areas

Legend
- Wild land
- Crofting areas
  - Primary
  - Secondary
  - Tertiary

Kilometers
Methods of analysis

POINT PATTERN ANALYSIS

DENSITY METHODS
- Quadrat Counts
- Kernel Density
- Nearest Neighbour G/F Functions
- Ripley’s K

DISTANCE METHODS

POINT-BASED CLUSTER DETECTION
- Global
- Local

AREA-BASED CLUSTER DETECTION
- GAM
- SaTScan
- Moran’s I
- Geary’s C
- LISA
- Getis-Ord Gi
- Getis-Ord Gi∗

REMOVAL
- Post Medieval (All)
- Post Medieval (Roofless)

DILUTION

RETRACTION

RELOCATION
Settlement desertion
Settlement retention

Kernel Density (unweighted)
Settlement desertion

SaTScan results (50 km scan radius)

SaTScan results (25 km scan radius)
Hot spot analysis
Study area selection

Legend
- Mirrors
- Counties (1951)
- Study areas
- SaTScan Clusters
  - Main cluster
  - Secondary cluster
- Getis-Ord Hot Spots
  - $G^*_u < 2.58$
  - $G^*_u > 2.58$

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Conclusions

• Evidence to support both assertions
  – Spatially constrained
  – Both empty and emptied areas

• Basis for wild land designation and re-wilding projects?
  – Politically sensitive to cultural histories of indigenous population
  – Extendable to other regions and cultures
  – Combine with fuzzy methods?
Any questions?

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