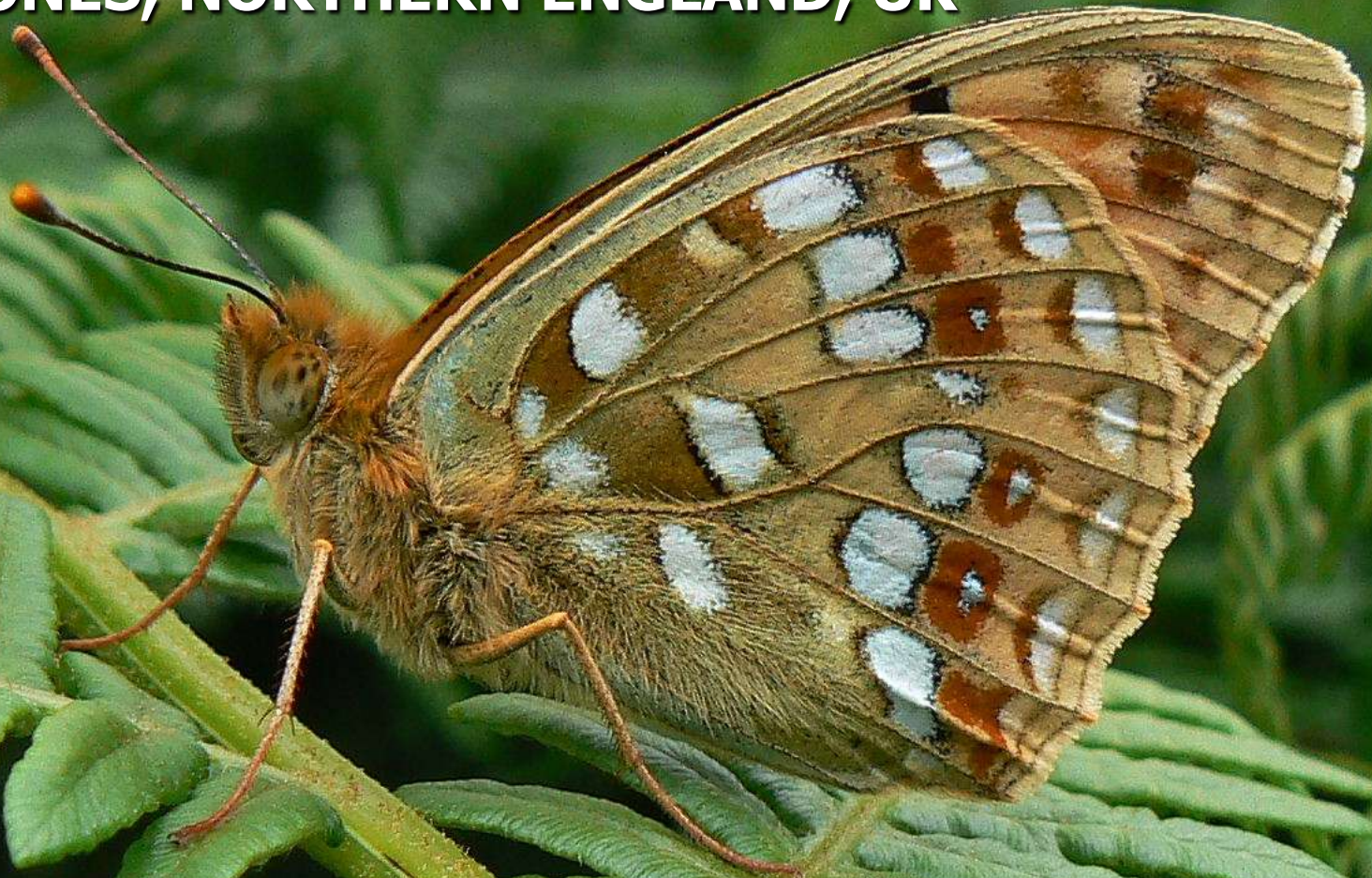


**LANDSCAPE-SCALE CONSERVATION OF
THE HIGH BROWN FRITILLARY *Argynnis
adippe* ON THE MORECAMBE BAY
LIMESTONES, NORTHERN ENGLAND, UK**



Sam Ellis, Dave Wainwright and Martin Wain



**DISTRIBUTION
AND ABUNDANCE**

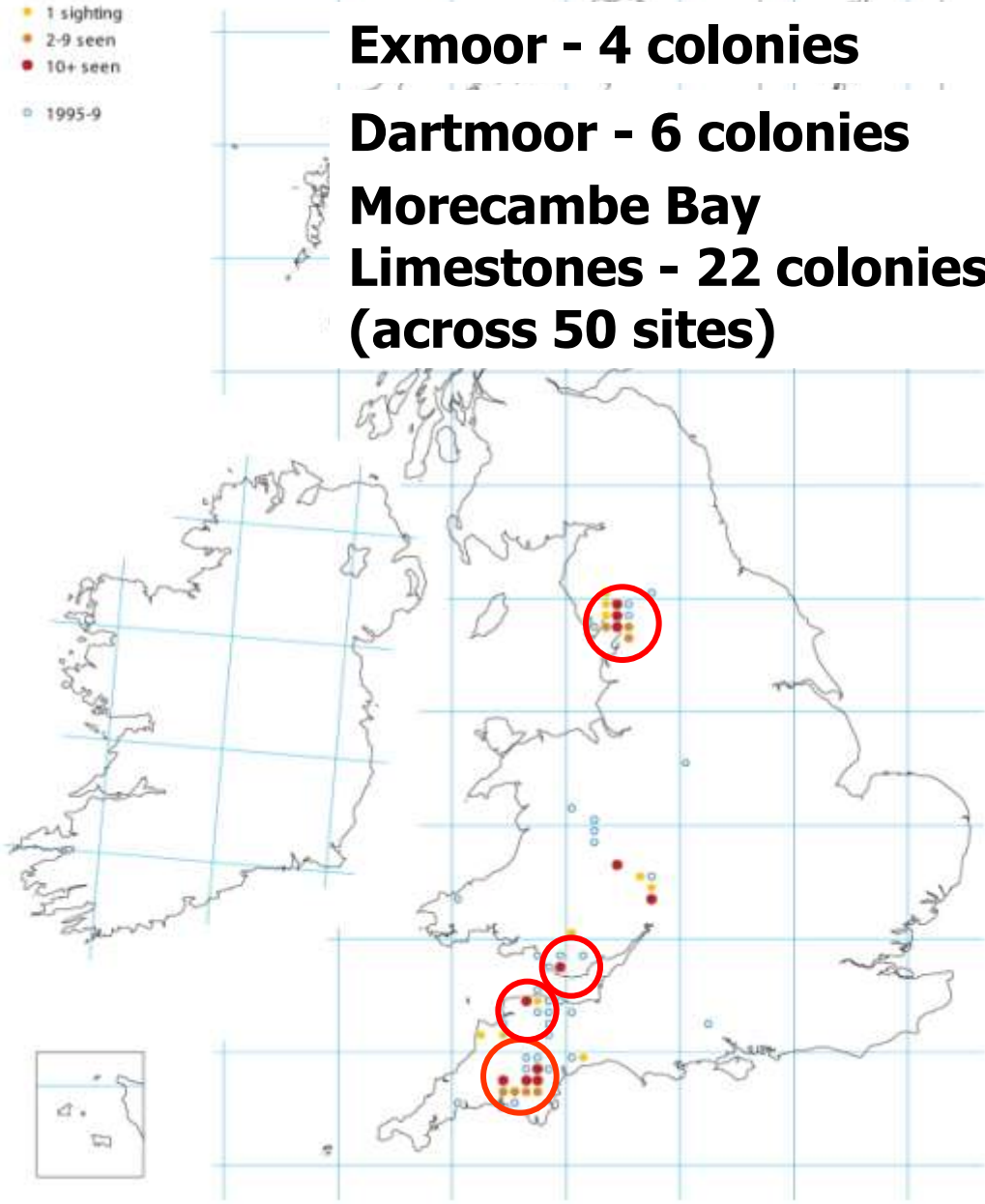
**79% distribution decline
1970-82 to 1995-2004**

**49% distribution decline
1995-99 to 2005-09**

**69% population decline
1995-99 to 2005-09**



High Brown Fritillary
2005-9
● 1 sighting
● 2-9 seen
● 10+ seen
○ 1995-9



South Wales: 1 colony

Exmoor - 4 colonies

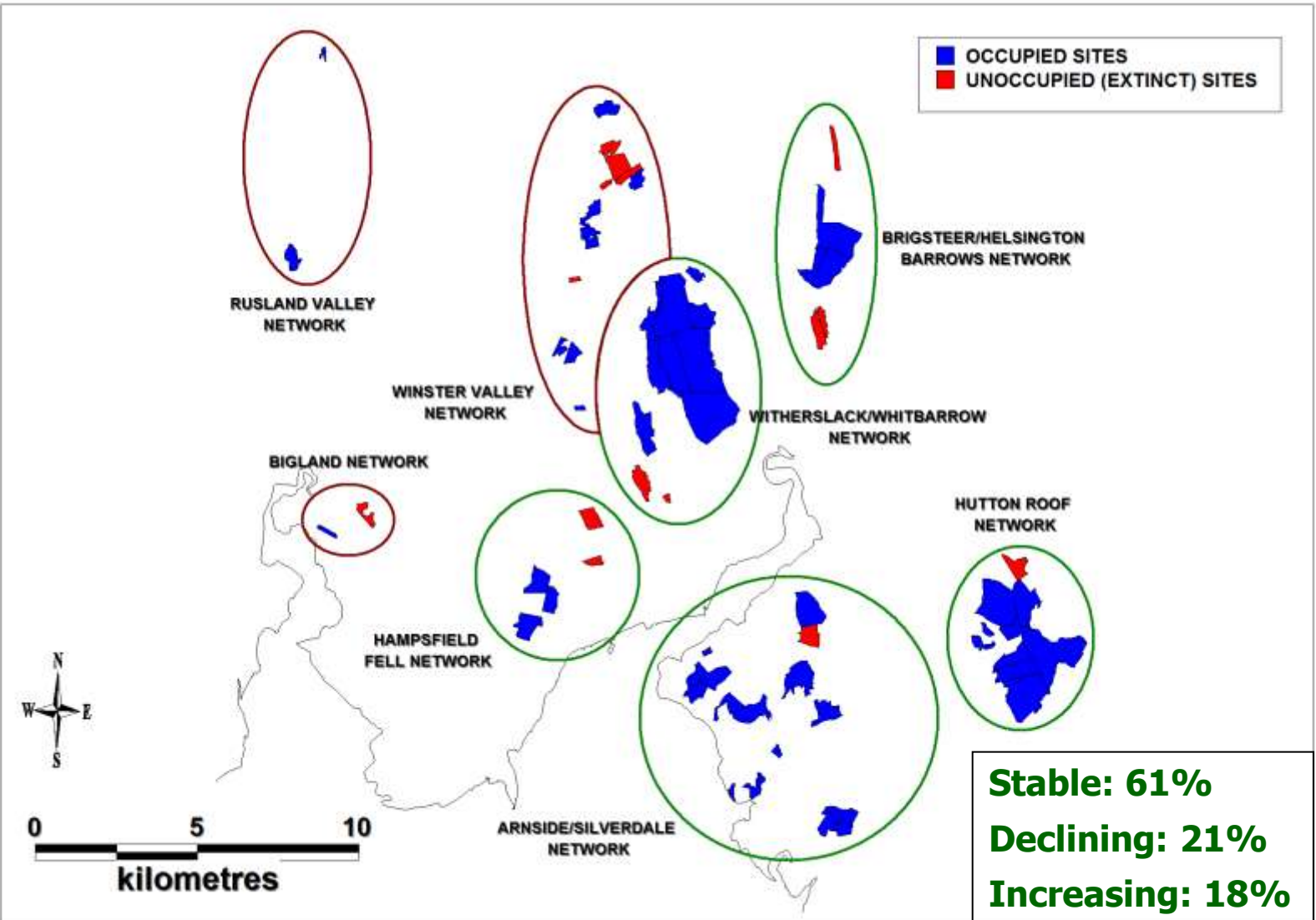
Dartmoor - 6 colonies

**Morecambe Bay
Limestones - 22 colonies
(across 50 sites)**



STATUS OF *Argynnis adippe* ON THE MORECAMBE BAY LIMESTONES 2007

50 occupied sites ; 15 extinctions (23% loss)



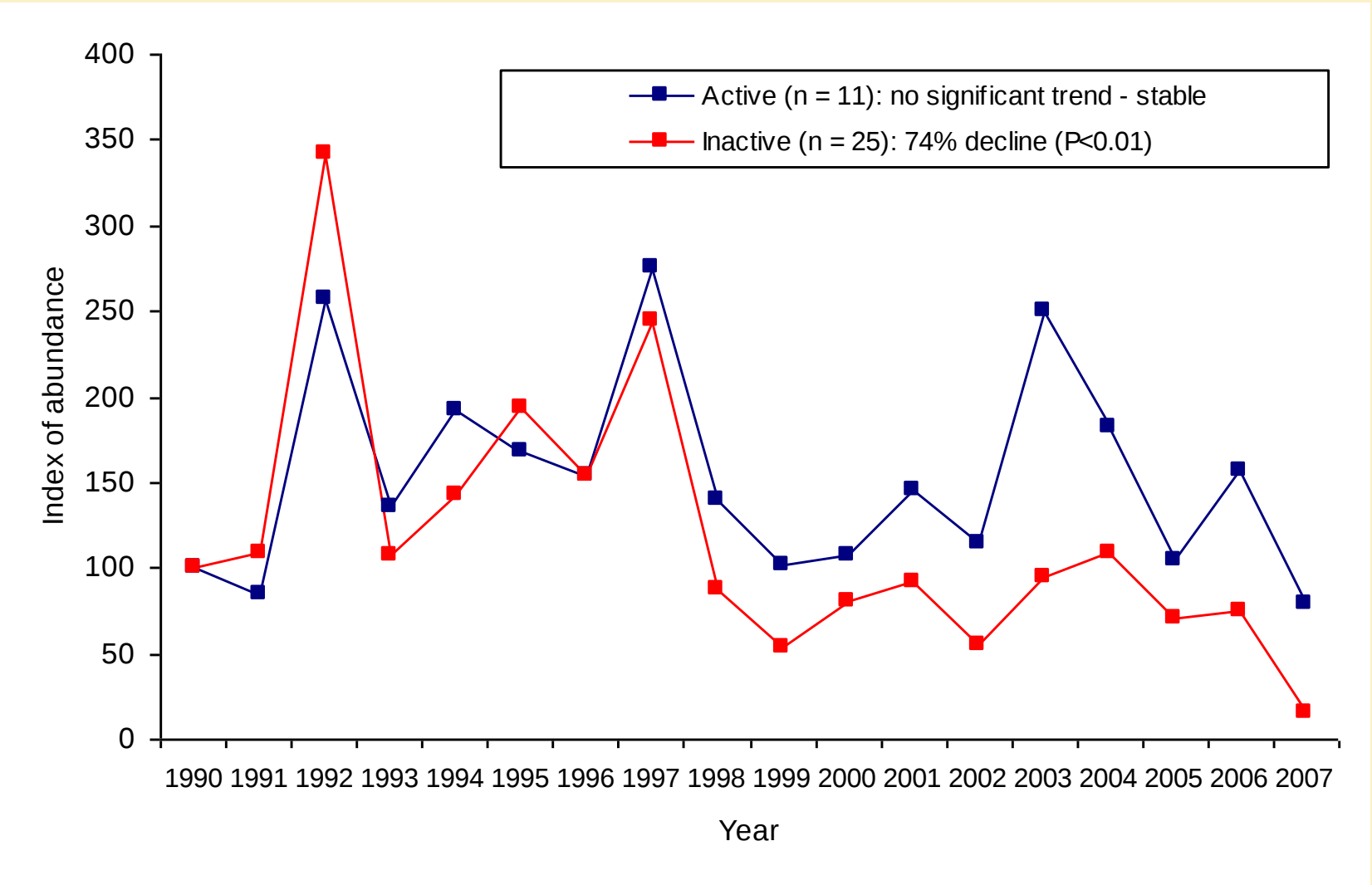
Argynnis adippe HABITATS





IMPACT OF TARGETED 'WOODLAND' MANAGEMENT

Coppicing and ride management in woodland and scrub cutting over limestone outcrops on grassland sites



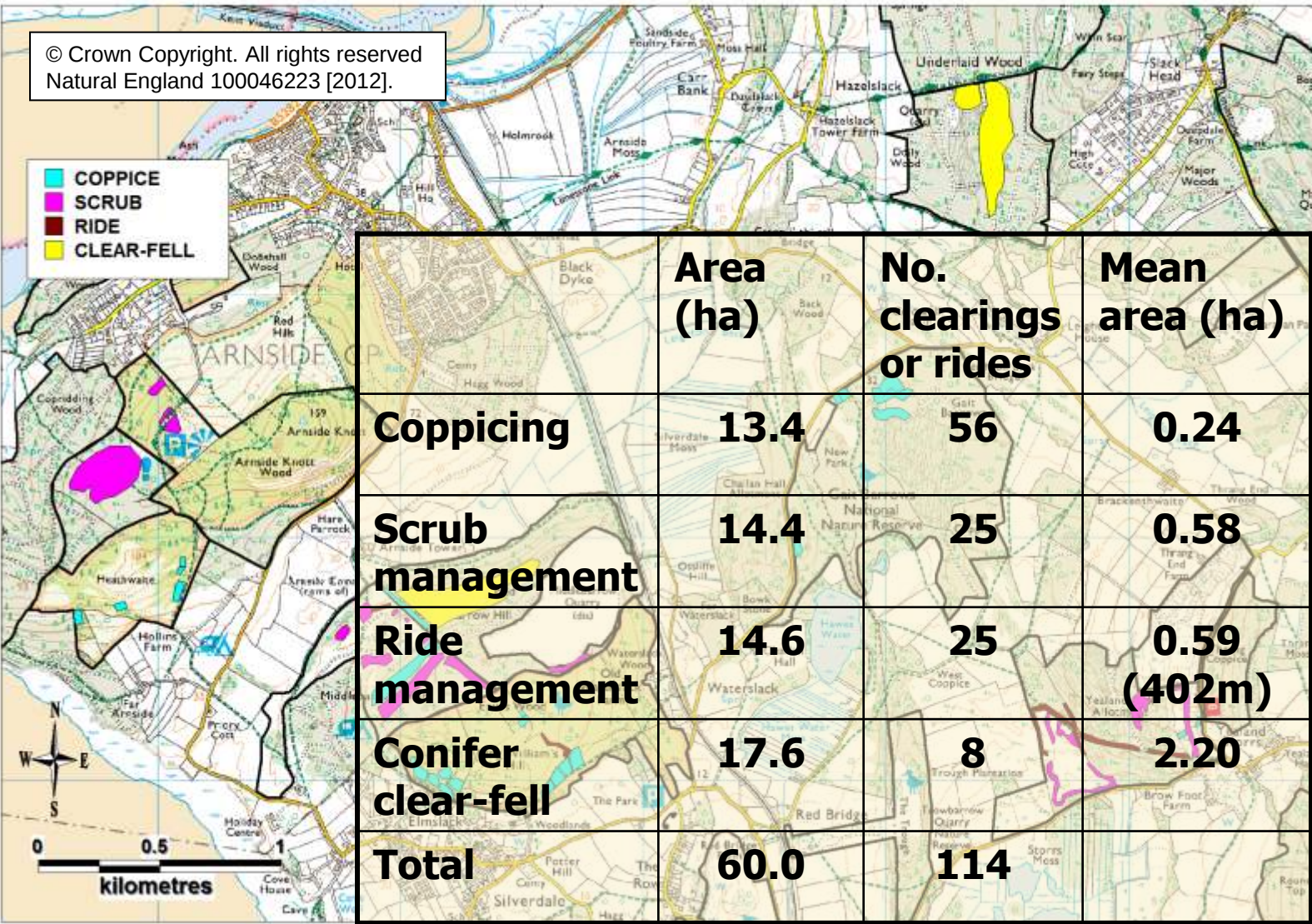


Conservation of the High Brown Fritillary on the Morecambe Bay Limestones



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- COPPICE
- SCRUB
- RIDE
- CLEAR-FELL

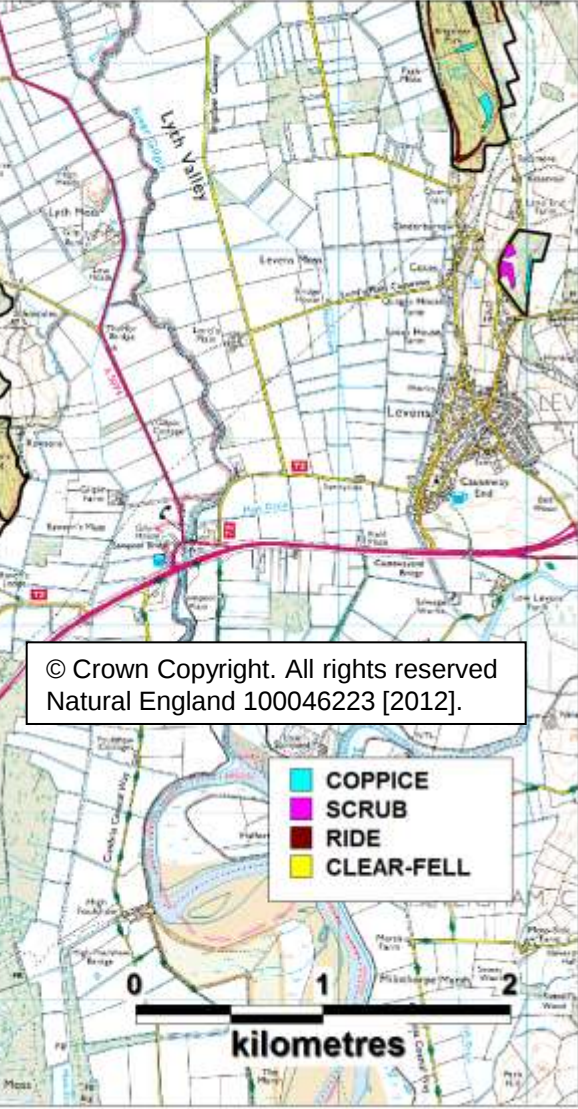


	Area (ha)	No. clearings or rides	Mean area (ha)
Coppicing	13.4	56	0.24
Scrub management	14.4	25	0.58
Ride management	14.6	25	0.59 (402m)
Conifer clear-fell	17.6	8	2.20
Total	60.0	114	



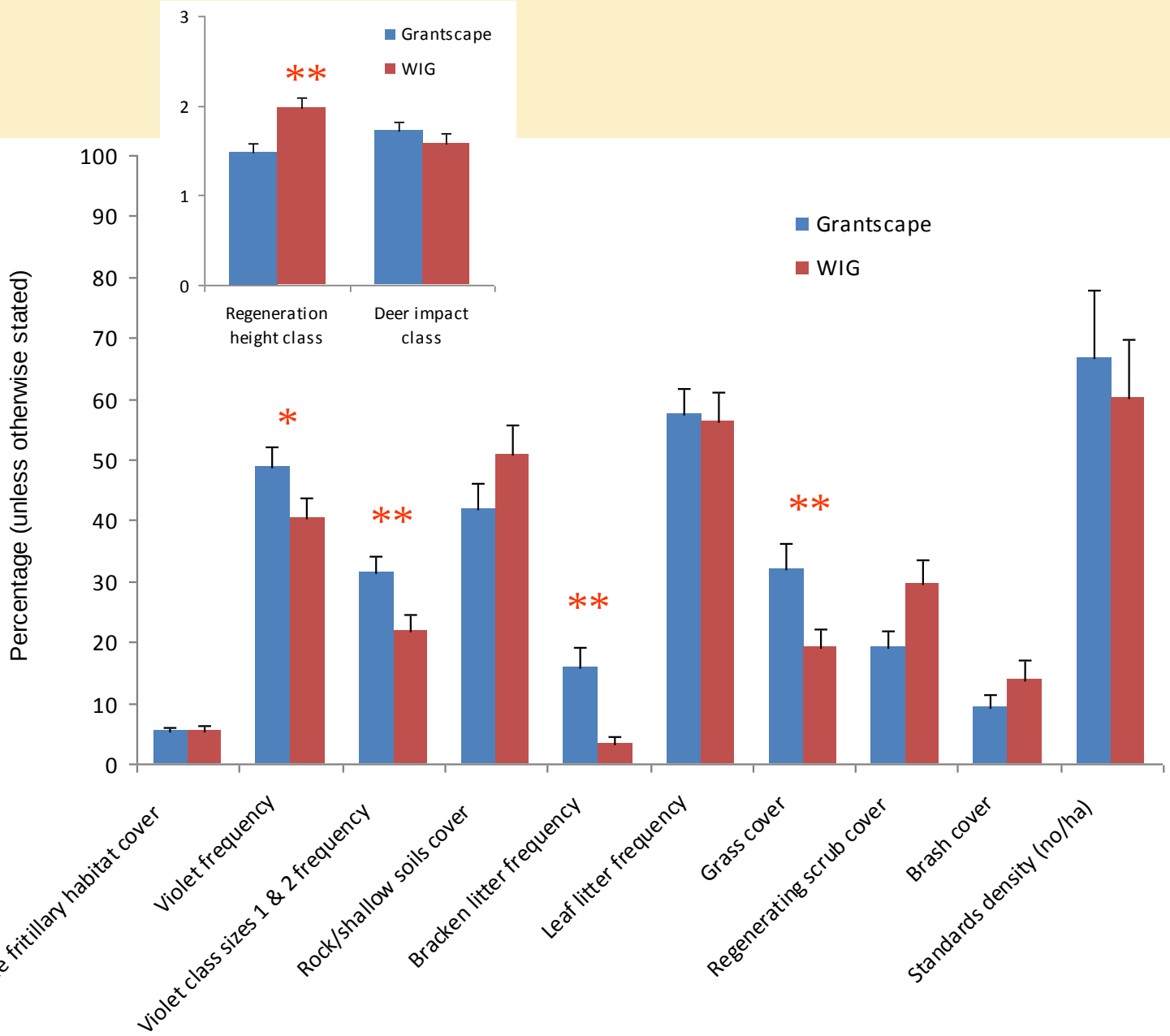
Conservation of the High Brown Fritillary on the Morecambe Bay Limestones

	Proportion managed 2008-11
Site area	6%
Woodland	7%
Ancient woodland	5.5%
Plantations on Ancient SNW	10%
Calcareous grassland	7.5%



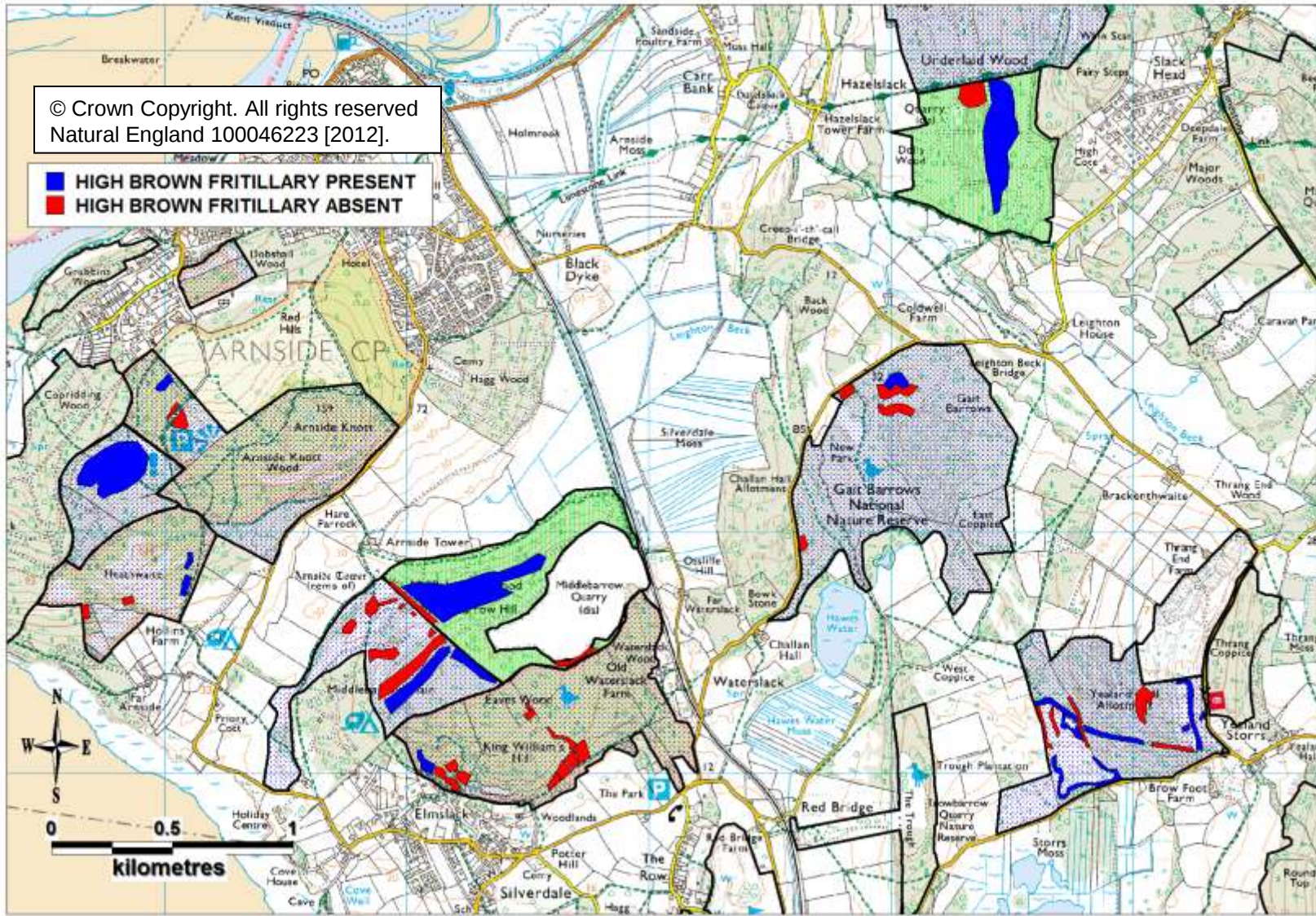


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Recorded from 23% of clearings and rides

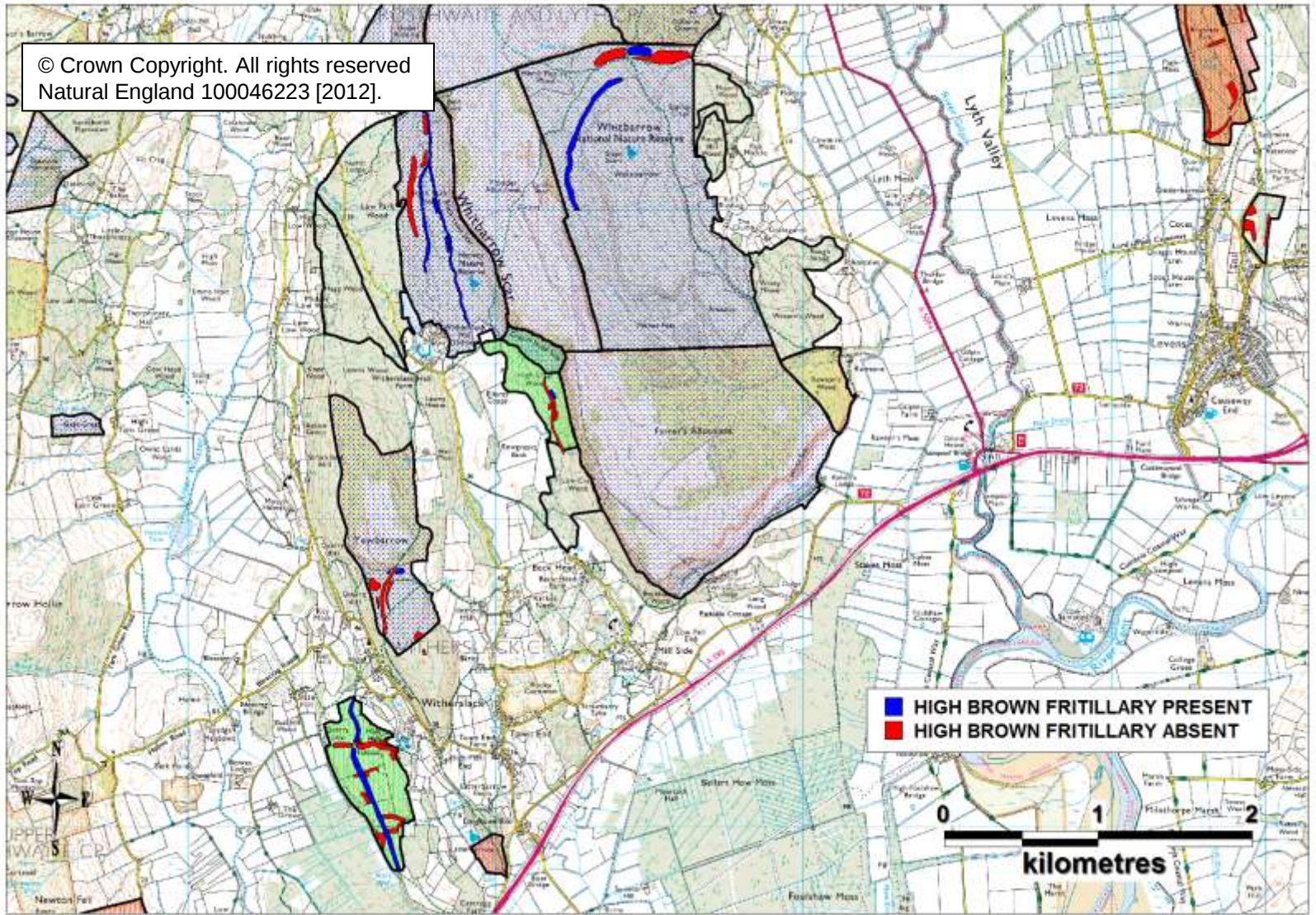




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2007: 14 occupied project sites; 4 former; 5 potential
2011: 2 sites recolonised; 2 sites colonised - 29% increase

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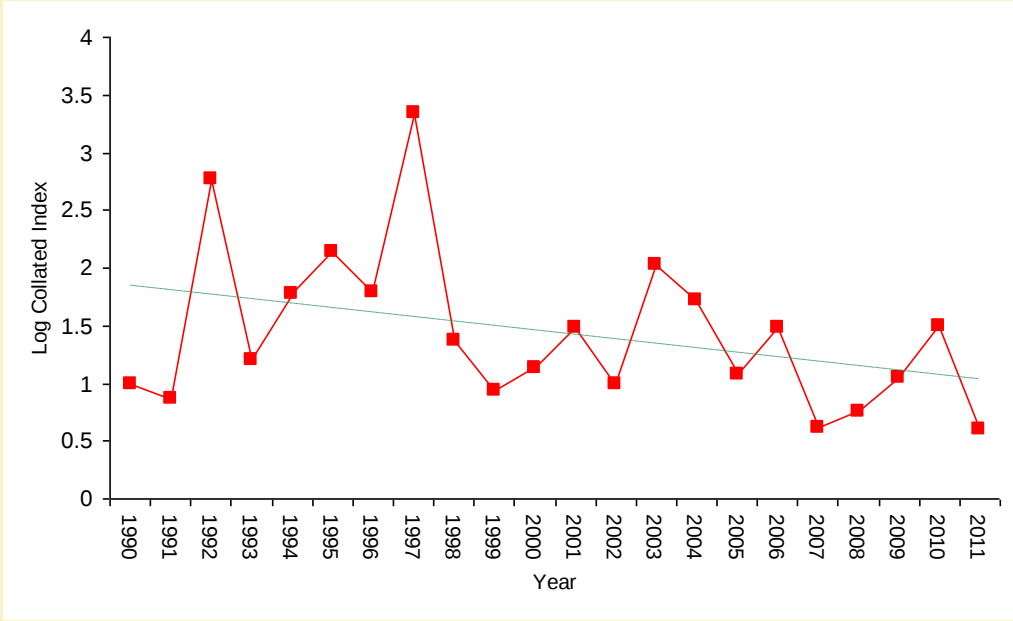




**UNDERESTIMATING
OCCUPANCY**

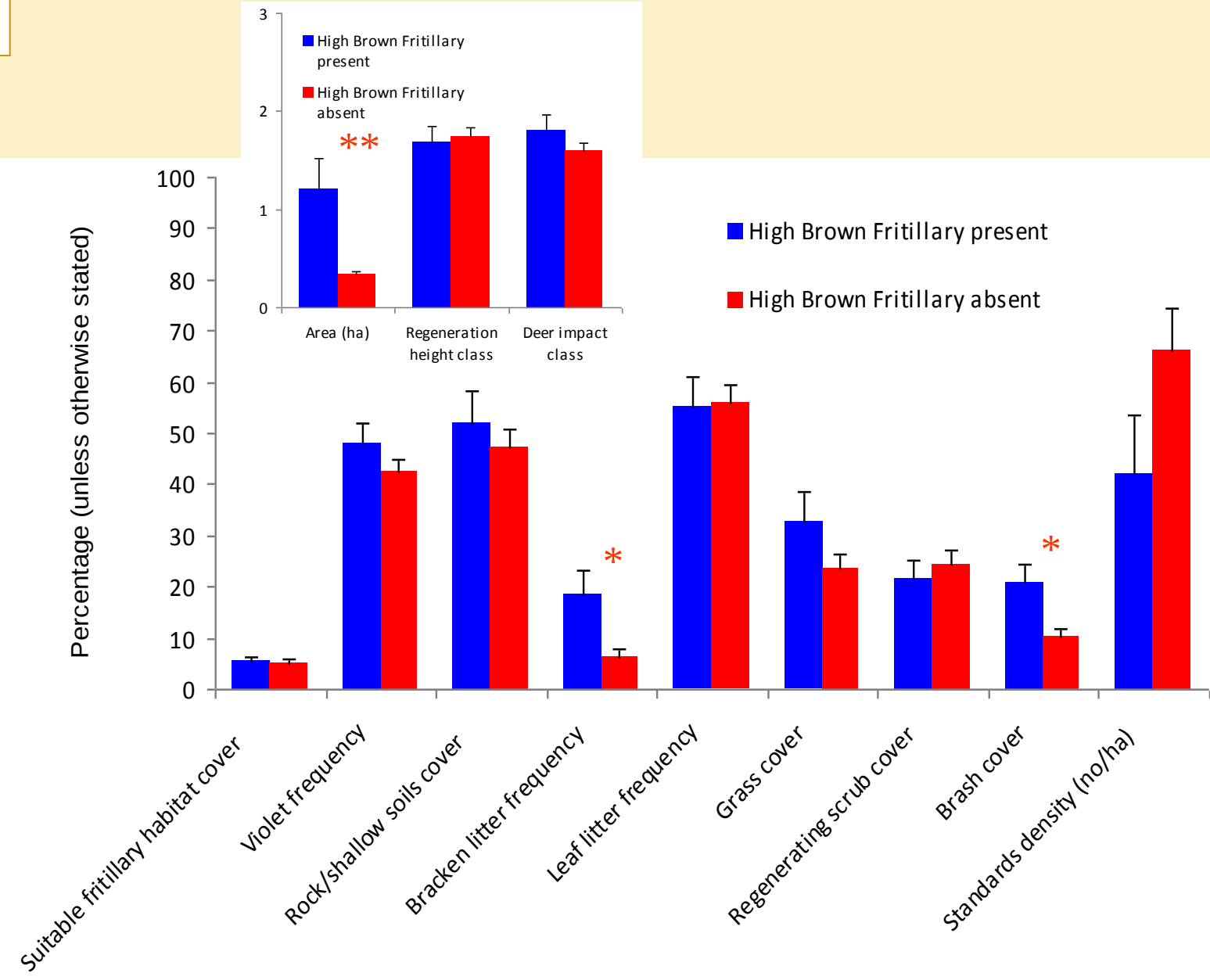
Argynnis adippe: 9%
Arygnnis aglaja: 22%
Unidentified large fritillary: 69%

**Ratio of *A. adippe* : *A. aglaja*:
1 to 2.4**





Conservation of the High Brown Fritillary on the Morecambe Bay Limestones



**2 sites re/colonised:
14% increase**

Boloria euphrosyne

28% clearings/rides occupied

Boloria selene

2 new sites

Anania funebris

1 site colonised

Hamearis lucina

**24%
clearings/rides
occupied**

Aricia artaxerxes

KEY LESSONS FOR LANDSCAPE-SCALE CONSERVATION

Rapid responses of threatened species to targeted habitat management

Importance of improving within site connectivity through rides

Re-occupied sites may act as stepping stones for colonisation of other potential sites if managed in follow-up phase

Low levels of occupancy reflect localised nature of suitable habitat for species - emphasises importance of establishing enough patches across landscape

Regeneration of scrub and coppice emphasises importance of management continuity

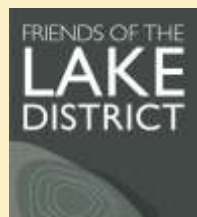
Both BC-led targeted management and WIGs produce high quality habitat – but this is a special landscape

WIGs offer longer-term management opportunities – continued availability vital



Conservation of the High Brown Fritillary on the Morecambe Bay Limestones

THANKS TO:



**Member organisations
of the High Brown
Fritillary Action Group:**



**The many volunteers who
contribute to the monitoring
programme and attend work
parties**

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Conservation) for the TRIM analyses
of monitoring data**

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(Natural England) and James
Anderson-Bickley (Forestry
Commission England)**

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Hunter, Sam Ellis, Martin Warren,
Jim Asher and Nigel Jarman**