

TB in deer update

Alex Barlow, VLA Wildlife Group, Great Britain

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Wild deer species in Great Britain with confirmed *Mycobacterium bovis*

ROE DEER – 1985 (Gunning)

RED DEER – 1985/6 (CVO report)

SIKA DEER – 1987 (Rose)

FALLOW DEER – 1988 (Fleetwood & others)

MUNTJAC – 2001 (Delahay & others)

C.V.O.'s Reports:- Number of Suspect Cases of TB Investigated & Confirmed by VIS/VLA

Three Year periods	Wild Deer	Farmed Deer	Park Deer	Total Confirmed (<i>M bovis</i> +ve)	Total Statutory Deer Submissions Investigated by VLA
1984-1986	7	3		10	Approx. 2,000 from 1984-1988, most with no lesions
1987-1989	5	10+		15+	
1990-1992	3	8		11	78+
1993-1995	5	0		5	54+
1996-1998	20	1		21	65+
1999-2001	14	6		20	116
2002-2004	59	20		79	206
1984-2004	113	48+		151+	2519+

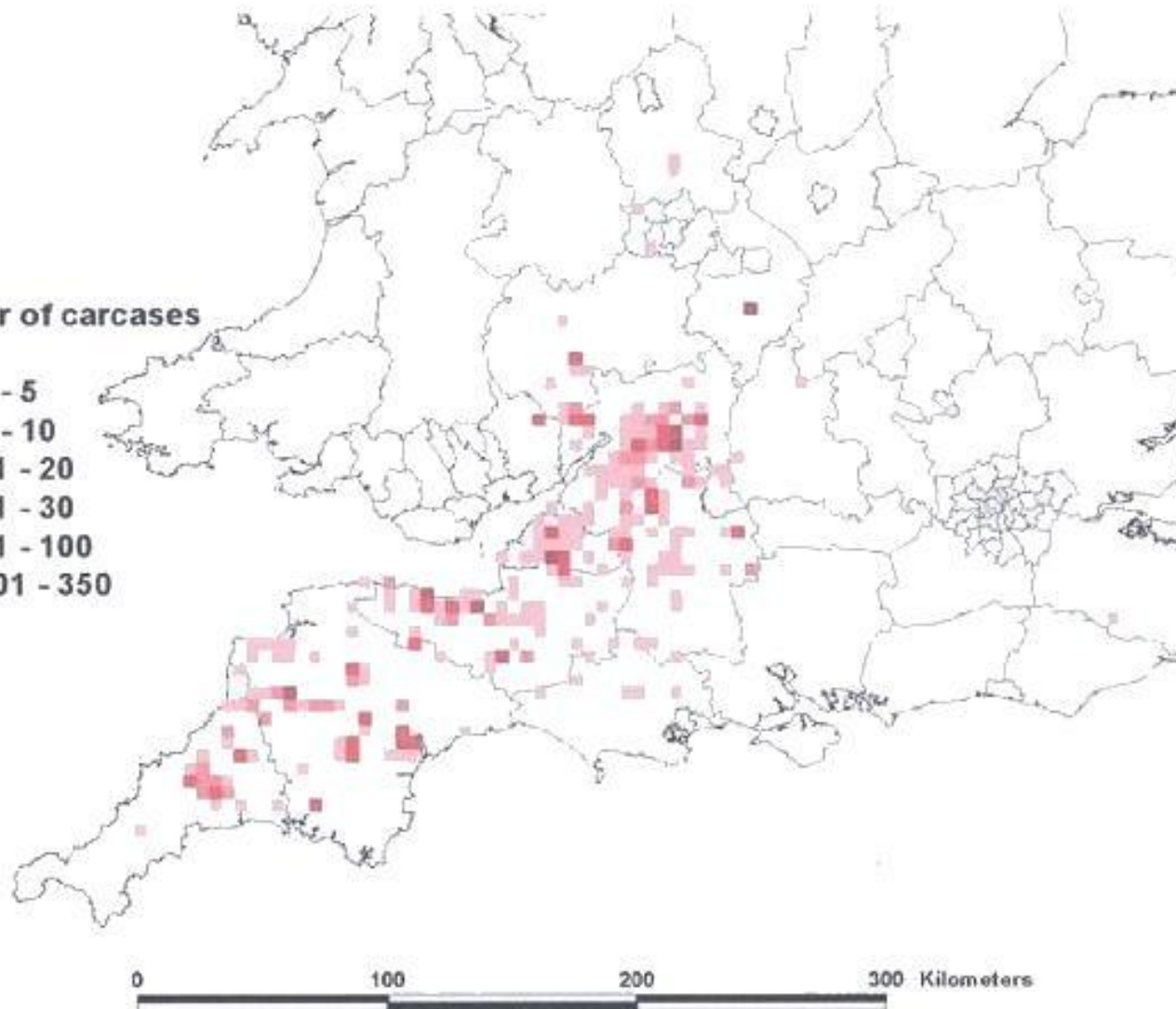
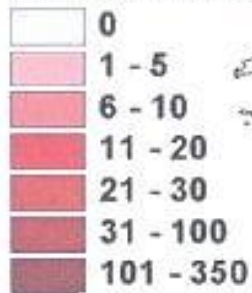
NUMBER OF SUSPECT CASES OF TB INVESTIGATED & CONFIRMED BY VLA in 2005

SPECIES		No. examined	No. +ve <i>M.bovis</i>	County
Fallow	Wild	9	5	Gloucester - 1, Herefordshire -3, Shropshire - 1
	Park	1	1	Cumbria
Red	Wild	22	16	Somerset - 14, Devon - 2
	Farmed	9	0	
	Park	1	0	
Roe	Wild	36	2	Somerset – 1, Gloucestershire- 1
	Park	1	0	
Muntjac, Sika, N/K		3	0	

CSL/VLA wild mammal Project 2000-2003

Collections sites of Deer

Number of carcasses



Results from CSL/VLA wild mammal Project 2000-2003

Species	Total Collected	Total Culture +ve <i>M.bovis</i>	Prevalence	95% Confidence Interval	
				Min	Max
Roe Deer	885	9	1.02	0.47	1.92
Red Deer	196	2	1.02	0.12	3.64
Fallow Deer	504	22	4.37	2.76	6.53
Muntjac	58	3	5.17	1.08	14.38

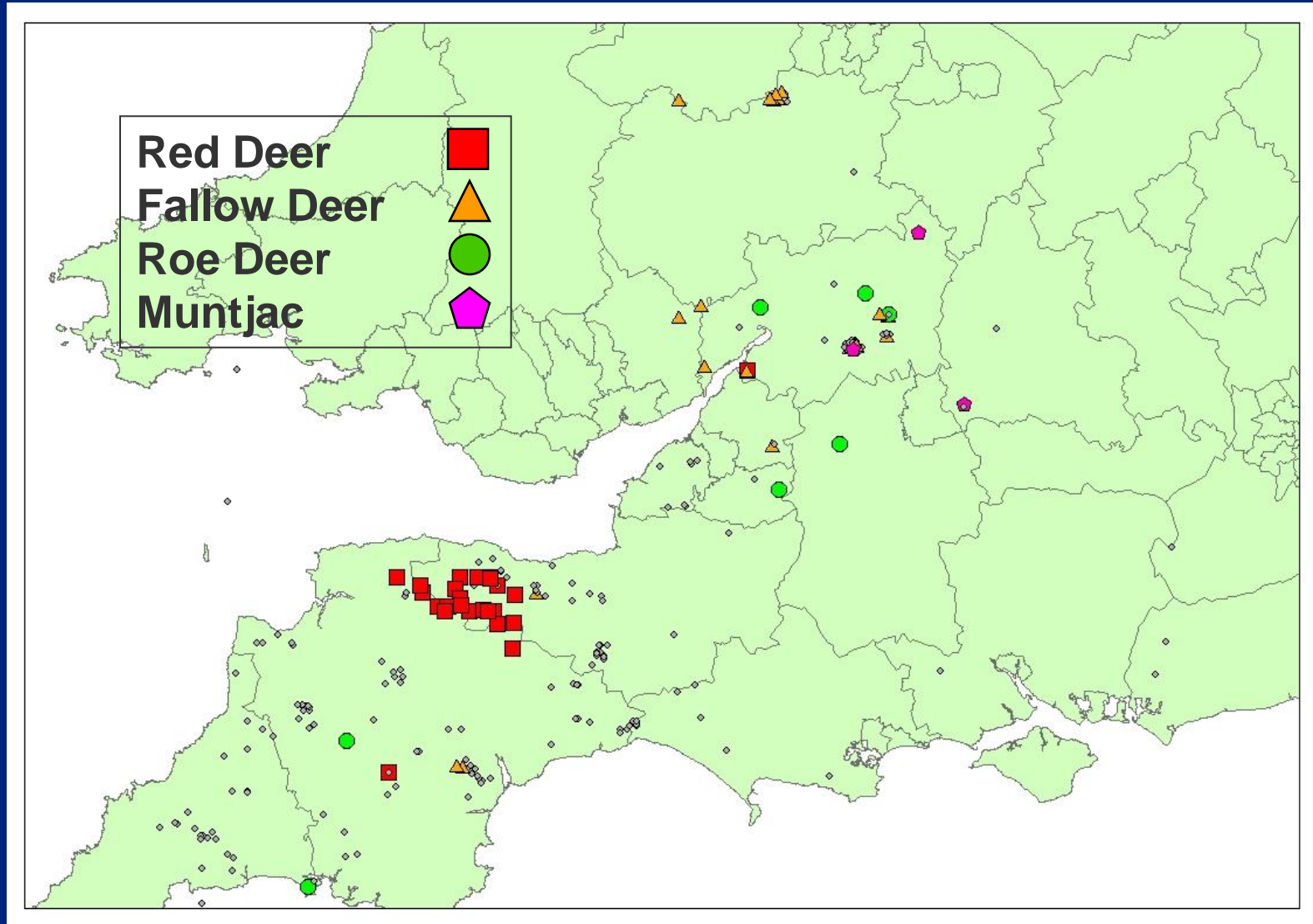
South-West England and Cotswold Survey sites 2006-2007



Results from South-west England and Cotswold Survey 2006-2007

Species	Total Collected	Total Culture +ve <i>M.bovis</i>	Prevalence
Roe Deer	311	2	0.6
Red Deer	137	2	1.5
Fallow Deer	254	24	9.4
Muntjac	18	0	0.0

M. bovis isolates from deer 2007-9



Number of TB cases confirmed by VLA in Wild and Park deer from 2006 to 2010

Species	Total Collected	+ve <i>M.bovis</i>	+ve <i>M.avium</i>	Unclassified /other <i>Mycobacteria</i>	- VE	Not done	Prevalence <i>M.bovis</i>
Roe Deer	71	14	1	2	44	10	19.7
Red Deer	85	62	12	1	7	3	72.9
Fallow Deer	42	34	1	4	13	1	81.0
Muntjac	5	3	-	-	1	1	-

Surveillance:- Passive/Active

Detection

- Cases reported by deer stalkers
- Various deer surveys (CSL/VLA, SW England, WAG)



Submissions

- Many stalker submissions positive (only VLs submitted)
- Few deer survey submissions positive (NVLs and VLs)



Pathology

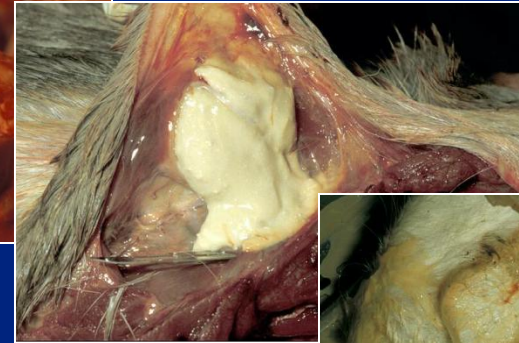
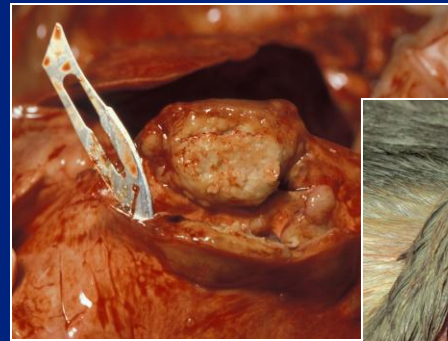
- Retropharyngeal LNs
- Lung/Bronchomediastinal LNs
- Mesenteric LNs



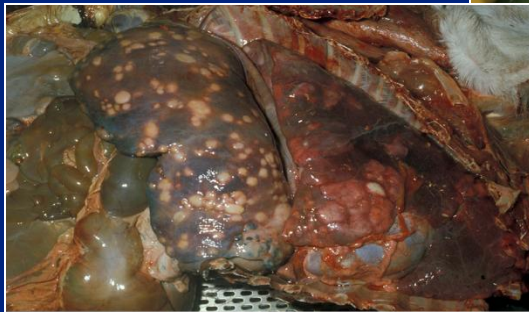
Gross Pathology

Lesions:- Abscesses

- Mainly LNs and Lungs
- Mineralised → purulent fluid



- Some very large
-size/extent



- Mammary infection (rare)



•Distribution

→ either Respiratory or Oral route of infection

CSL Semi-quantitative risk assessment

Species	Prevalence	Excretion likelihood	Contact likelihood	Biomass (Kg/km ²)	Risk Score
Red Deer	1.02	0.92	0.60	1158	0.835
Fallow Deer	4.37	0.96	0.71	722	1.624
Roe Deer	1.02	1.00	0.63	462	0.262
Muntjac	5.17	0.67	0.42	275	0.329

Conclusions

- Nasal/Oral routes of infection
- Deer species have different susceptibility to *M bovis*
 - Fallow/Red > Roe deer
 - Grazing/browsing
 - Density
- ? Maintenance host under certain conditions
 - High density
 - Supplementary feeding
- ? vector to cattle and other species
 - Co-grazing with cattle (direct/indirect)
 - Predation

The risks from/to deer?



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