

**Appendix 9**  
**DCS 2005 Deer Count Report**



**Deer Commission for Scotland**  
**Deer Count Report**

**Area:** East and West Grampian

**Dates:** 22<sup>nd</sup> - 25<sup>th</sup> February 2005

**Report compiled by:** Donald Fraser

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Following DCS guidelines as outlined in the document "Deer Count Reporting Guidance"

## **PURPOSE**

Through the priority site process DCS was committed to counting areas within the East and West Grampian area in 2005. Recognising that there was scope for facilitating a wider collaborative count of the area DCS approached the Tayside, Speyside and East Grampian DMGs in order to gauge the level of interest in a wider count. Feedback proved positive and it was agreed that the collaborative count would take place in the Speyside, Tayside and East Grampian sub areas 1,2,3, and 5 with DMGs paying a contribution towards the cost of the count.

East Grampian sub area 4 (Angus Glens) decided not to take part in the collaborative helicopter count but did carry out a ground count of their sub group area during the period of the wider collaborative count.

Scottish Natural Heritage, Forestry Commission Scotland and the Cairngorm National Park Authority supported the idea of undertaking a wider collaborative count of the DMG areas.

- DCS secured funding from SEERAD to undertake a collaborative count of the three wider DMG areas, provided there was support for the count and a financial contribution from DMGs towards the estimated cost.
- An element of SEERAD / DCS funding and staff input into the count was provided on the basis of training the nominated DMG co-ordinators in Best Practice for counting. Each DMG and sub-group was asked to nominate co-ordinators who would receive this training throughout the count process.
- The remainder of the count costs was sought from the Deer Management Groups.
- DCS recognise that there is no perfect approach in determining the apportionment of costs however we endeavoured to be fair in apportioning reasonable costs to DMGs, based on the public interest in counting within each DMG, a contribution towards training for Best Practice in deer counting, and a weighting based on complexity of ownership, deer density and movement.

## **PRE COUNT PLANNING**

DMGs were asked to nominate co-ordinators who would liaise with DCS staff and local stalkers to facilitate the count. On securing confirmation from DMGs of their participation DCS staff met with the nominated DMG count co-ordinators on 22<sup>nd</sup> - 23<sup>rd</sup> December 2004 and the 17<sup>th</sup> - 18<sup>th</sup> January 2005.

These meetings and subsequent work allowed sufficient information to be gathered to inform count resource needs in terms of unenclosed woodland areas within the deer range which could be driven and counted, woodland too large to be driven and deer fenced areas within the deer range / count area. Appropriate count day areas were also identified to prevent / limit movement between day count areas. Co-ordinators were supplied with 1:25,000 scale maps to help with collection of fenceline and woodland information.

During the pre-count meetings it was agreed that the Allargue, Delnadamp and Crown Estate properties between East Grampian sub area 5 – Mar and the Speyside group should be included in the count area as there was recognised movement between these areas, although they did not form part of the DMG structure. Including this area in the count formed a more logical and secure boundary in terms of deer movement / management.

It was recognised that weather conditions would be critical to achieving the count and it was anticipated that up to six days of clear weather with snow cover would be needed to limit deer movement and reduce the area where deer were likely to be encountered.

It was estimated that up to 20 helicopter days would be required to undertake the count, with the intention of sub-dividing the area into sectors with 3-4 helicopters used to count an area at one time.

It was agreed that woodland areas that were not fully excluded from open range red deer would where feasible, be driven to push deer onto the open range to be counted. Woodland areas where population assessment has been carried out through dung counting, or where the woodland area is too large to move deer effectively, would not be driven.

In line with DCS counting policy on collaborative counts it was recognised that it would be important that DMG members and stalkers were involved in planning, counting, and report preparation along with DCS staff so that estate staff will be in a position to undertake similar counts in future.

<b>SUB GROUP</b>	<b>DMG CO-ORDINATOR</b>
<b><u>Tayside</u></b>	Sandy Reid (Ronnie Hepburn) / Gordon Macgregor
	Gordon MacGregor
<b><u>Speyside</u></b>	Desmond Dugan
	Michael Hone
<b><u>East Grampian 1</u></b>	Jason Williamson
	Kevin Peters
<b><u>East Grampian 2</u></b>	Eion Smith
	Ben Fernie / Philip Fernie
<b><u>East Grampian 3</u></b>	Victor Clements
<b><u>East Grampian 5</u></b>	John Cruickshank / John Fraser
	Iain Campbell
	Stuart Cummings

<b><u>East Grampian 4</u></b>	Richard Cooke

## **METHODS**

1. Type of count: Helicopter, digital camera and visual
2. Classification: Antlered Stags and unclassified total

DMGs were aware that the count could take place at relatively short notice since December 2004, if and when suitable weather conditions arose. DCS and DMG co-ordinators were in contact leading up to the count taking place.

Four different helicopter companies were used during the count, Heli-charter, PDG and Forth and Clyde helicopters. Helicopters were based at Mar Lodge for the duration of the count as this was a central point for the count area. Fuel for these helicopters was provided by bowser when helicopters were working on the periphery of the count areas (Atholl and Glen Tanar). Three Heli-charter helicopters (2 x Bell Jet Ranger 1 x Bell Long Ranger) were available for the duration of the count with PDG and Specialist (Squirrel, Gazelle and Eurocopter) helicopters brought in as necessary.

On each morning briefings were done at the Mar Lodge base, involving all count crews and individuals involved in liaising with ground teams. Briefings involved weather brief, outlining the day's count area, helicopter crews and logistics.

The use of the cameras for counting deer saved helicopter time particularly on large groups of deer as an assessment of numbers could be carried out at a later date. Deer movement was kept to a minimum, estimated to average less than 500 meters.

On larger, spread out groups of deer, a little time (approximately 1 – 2 minutes) was taken to allow deer to group together, this allowed images to be taken of discreet groups of deer. The location of deer groups observed, helicopter flight paths and woods from which deer were moved have all been mapped. Copies of these maps are enclosed with this count report.

## **Day One**

### **Lynaberack, Gaick, Glenfeshie, Ralia, Phones, Drumochter and Ralia, Killiehuntly**

Due to weather conditions in the south of the country the Heli – charter helicopters did not arrive at Mar Lodge until 11.30 hrs on day one. Snow showers and low cloud meant that counting in the Lynaberack and Glenfeshie areas took longer than expected as helicopters had to land while showers passed through. It was recognised that the original day count area was not going to be completed so all resources were focussed on achieving a suitable break area to prevent any movement / double counting and the three helicopters were used to count from the Highland – Tayside county boundary on the A9 East to Glenfeshie which was used as the count break boundary for day one. The slow progress made on day one meant that not all of the intended count area was covered by the helicopter count teams and therefore ground teams which were waiting to count woodlands in Abernethy and Rothiemurchus were not used on day one.

## **Day Two**

### **Glenfeshie, Rothiemurchus, Abernethy, FCS Glenmore, HIE Cairngorm, Delnadamph, Allargue, Crown Estate, Glen Avon, Invercauld (Home beat), Delnabo, Dorback, Invereshie, Pityoulish, Seafeld Estate**

Weather conditions were calmer on the second day with good snow cover and bright sunshine which was ideal for counting. Three Heli – charter helicopters were used in conjunction with ground teams in Rothiemurchus, Abernethy and Glen Avon to count from the previous day break area at Glenfeshie, eastward. Helicopter teams were in contact with woodland clearing teams to ensure that driving / counting was co-ordinated. Due to excellent count conditions count teams were finished in Glen Avon and Abernethy by 15.30 hrs. To make best use of helicopter time John Cruickshank at Invercauld was contacted and arrangements were made to clear woodlands and count the home beat of Invercauld. This flexibility and willingness allowed a bigger area to be counted than had been planned at the outset of the day and meant that an effective day break boundary was made between Invercauld and Mar Lodge Estate.

## **Day 3**

### **Delnadamph, Glen Tilt, Invercauld (Baddoch), Mar Estate, Mar Lodge Estate, Part Glen Fernate, Atholl, Dalmunzie, Dalnacardoch, Finegand, Glen Kilrie, Invercauld (Rhiedorrach)**

Weather conditions on day three were similar to that of day two although there was significantly less snow cover on south facing slopes of the Tayside DMG. Three Heli – charter helicopters and two Forth and Clyde helicopters were used. One helicopter started at the day one break area on the Highland – Tayside county boundary on the A9 and worked east into Glen Bruar. Due to difficult counting conditions in the high ground of Glen Fernate and Fealar, this area was not completed on day three. The third heli-charter helicopter counted Invercauld (Baddoch), Mar Estate and then continued into Mar Lodge Estate. The two Forth and Clyde helicopters arrived at 14.00 hrs with one counting Glen Tilt west to Gleann Diridh and the other assisting in counting Mar Lodge Estate working west from the Invercauld / Mar Lodge Estate march. Unfortunately lack of helicopter flying time meant that there was an area between Gleann Diridh and Glen Bruar which was not counted on day three.

## Day 4

**Abergeldie, Balmoral, Glen Muick, Glen Tanar, Invercauld (Glen Callater) Atholl (Forest Lodge)(West hand), Balnakeily, Fealar, Glenfernate, Lude, Straloch, Tarvie, Urrard, Airlie, Alrick, Auchavan, Balintore, F.E. Drumshade, Glen Isla, Glen Cally, Glenprosen, Invercauld (Shee) Lednathie, Tulchan, Waterboard Ground.**

Five helicopters were used on day four in order to complete the count area. One helicopter was used to count the area between Gleann Diridh and Glen Bruar which was not completed the previous day. It then continued counting east of Glen Tilt in through Lude towards Glen Fernate. One helicopter worked North and West from the sub area 4 boundary through Glen Dye and into Glen Tanar /Glen Muick where it met with the helicopter working East from Balmoral. Significant areas of woodland were driven in Balmoral, Glen Muick, Glen Tanar and in sub Area 5 with ground teams liaising closely with helicopter co-ordinators. Glen Callater was counted working South and East from the Invercauld (Callater) march with Balmoral down to the Spittal of Glenshee where it met with the helicopter counting in Glen Isla. The helicopter which counted Glen Callater then counted Glen Doll / Bachnagairn before moving into Glen Prosen. The helicopter that counted Glen Isla then moved into Glen Fernate to link in with the helicopter working eastward from Lude.

## **WEATHER**

	<b>Day 1</b>	<b>Day 2</b>	<b>Day 3</b>	<b>Day 4</b>
<b>Date(s)</b>	22/2/2005	23/2/2005	24/2/2005	25/2/2005
<b>General conditions</b>	Bright spells with snow showers.	Bright and clear	Bright and clear	Bright and clear
<b>Wind direction</b>	NW	NW	NW	NW
<b>Wind speed</b>	4 - 6 knots	4 knot	4 – 8 knots	4 knot
<b>Snow cover</b>	Complete	Complete	Complete	Complete
<b>Cloud cover</b>	7/8	4/8	1/8	0/8
<b>Cloud level</b>	3000ft - Areas of low cloud /mist and snow showers reduced visibility at times.	n/a	n/a	n/a
<b>Temperature</b>	1°C	1°C	2°C	3°C

## COUNT DATA

The property (ha) and Density (sq Km) relate to the area and deer density derived from DCS GIS information of property boundaries shown in red on the count maps. An additional column for deer range and density has been added to the tables to allow owners / managers to calculate and enter different deer range and density figures for their own properties.

### Speyside DMG

	Stags	Unclassified	Total	Digital Count	Visual Count	Property (ha)	Density (sq km)	Deer Range	Density (sq km)
<b>Total</b>	1788	5570	7358	6672	686	103818	7.26		

### Tayside DMG

Property	Stags	Unclassified	Total	Digital Count	Visual Count	Property (ha)	Density (sq km)	Deer Range	Density (sq km)
<b>Total</b>	5008	12852	17860	16920	940	80176	22.27		

### East Grampian : Sub Area 1

Property	Stags	Unclassified	Total	Digital Count	Visual Count	Property (ha)	Density (sq km)	Deer Range	Density (sq km)
<b>Total</b>	1614	7064	8678	8453	225	37185	23.34		

### East Grampian : Sub Area 2

Property	Stags	Unclassified	Total	Digital Count	Visual Count	Property (ha)	Density (sq km)	Deer Range	Density (sq km)
<b>Total</b>	2372	4712	7084	6542	542	44915	15.77		

**East Grampian : Sub Area 3**

Property	Stags	Unclassified	Total	Digital Count	Visual Count	Property (ha)	Density (sq km)	Deer Range	Density (sq km)
<b>Total</b>	<b>22</b>	<b>1067</b>	<b>1089</b>	<b>989</b>	<b>100</b>	<b>19431</b>	<b>5.6</b>		

**East Grampian : Sub Area 5**

Property	Stags	Unclassified	Total	Digital Count	Visual Count	Property (ha)	Density (sq km)	Deer Range	Density (sq km)
<b>Total</b>	<b>1897</b>	<b>3238</b>	<b>5135</b>	<b>4164</b>	<b>971</b>	<b>62120</b>	<b>8.27</b>		

**East Grampian : Sub Area 4**

Property	Stags	Unclassified	Total	Digital Count	Visual Count	Property (ha)	Density (sq km)	Deer Range	Density (sq km)
<b>Total</b>	<b>1542</b>	<b>4289</b>	<b>5831</b>						

Count data from the ground count undertaken by Sub area 4 members. DCS does not at this time have information to produce a map of Sub area 4 however this may be possible if the information is available.

## COUNT AUDIT

Component	Effect on quality of count	What could be done better?	Was population estimate adversely affected?
Pre count planning	Well planned Contact with DMG co-ordinators leading up to count and during count maintained and briefings done daily with count teams.	Communication with co-ordinators was ongoing through out the count and the fluid nature of the operational planning meant that plans changed quickly but every effort was made to keep all informed of how the count progressed.	No
Area counted	Entire area counted		No
Count method	Number of counters - Adequate counters		No
	Driven woodlands - Woodland driven where necessary / practicable	Every effort made to have enough resources to carry out effective clearing of woodland. Generally very successful.	Some groups of deer which did not come out of the woodland were recorded by ground teams in Abernethy, Rothiemurchus, Glen Tanar and Glendye. These deer have been included on the count map.
	Communications - Good communications	Communications between ground teams and helicopter always difficult but every effort made through out the count to keep in touch with ground teams and to keep them informed of count progression. Combination of weather and late arrival of helicopter led to some frustration with ground teams having to wait around particularly on day 1.	No
	Routes - Routes Appropriate for conditions	Overlaps were counted in Glen Bruar / Glen Feshie / Fealar and Glen Fernate to identify whether any overnight movement of deer had taken place.	Every effort was made not to double count with photographs used to distinguish groups of deer. Local DMG stalkers were involved in the count to ensure no double counting occurred.
Deer classification	Antlered Stags and unclassified Targets met		No
Number and quality of deer group photographs	Quality of photographs was good with software used to improve image quality.	A high percentage of the overall total 92% of deer were counted by photograph.	No
Visibility and data quality	Good visibility	Snow showers and low cloud on day one slowed count progress but did not affect accuracy of the count. Picking up deer on broken ground was difficult at times particularly on south facing slopes where snow cover was patchy	Every effort was made to count all areas. Time was taken over poorer snow cover areas to ensure that the count was as accurate as possible.
	Data quality high Data was collected as per DCS staff guidance on deer census.		No
Wind affects	Wind Strength Some wind	Performance of helicopters in terms of undertaking the tasks asked by navigators was generally good. Heli – charter pilots were not as experienced in counting / mountain flying as other companies but performed well and got used to the flying required as the count progressed	No
	Affect of wind on Deer No affect on deer		No
Ground conditions	Ground conditions variable - excellent snow cover in northern areas with broken ground in southern facing slopes making counting slower.	Given recent weather conditions over the last numbers of years it is unlikely to get four days of perfect conditions throughout a count area of this size.	No
Deer behaviour and movement affected?		Deer movement was taken into account in the planning process and every effort was made to ensure that count day boundaries were secure.	No If there was any doubt as to whether deer movement would take place then an overlap area was counted and photographs of groups compared to ensure no double counting of deer took place.

## COSTS

Organisation	Planning days	Count days	Report days	Cost (£)
DCS	15	32	25	
FCS (Heli crews)	0	11	0	
DCS Contractor	2	60	2	<b>9589.00</b>
Helicopter ( 114.7 hours)				<b>94271.91</b>
DMG	14	83		
Total	31	157	27	<b>103860.91</b>

Note: All contractor costs calculated at £150 per day. Helicopter hours include travel to and from count area and refuelling trips.

## COST ANALYSIS

Area counted (ha)	Cost per 100ha (£/sq. km)	Cost per deer (£/deer)
367435	28.27	£2.20

## CONCLUSIONS

Due to the scale and resources involved it was most important that there was an element of flexibility in the planning process throughout the count. This allowed count co-ordinators to make judgements as to when and where to deploy resources to make the most of count time available without compromising the accuracy of the count.

This flexibility was only possible due to the understanding of those involved that the progression of the count was going to depend on a range of different factors many of which were out with the control of the count co-ordinators. Throughout the count DCS endeavoured to keep DMG count co-ordinators informed as to how the count was progressing so that they in turn could make sure that other DMG members were aware of how the count was progressing.

Unfortunately it was not possible to accommodate all requests from DMG members wishing to take part as helicopter crew. Restrictions were necessary due to limited space in each aircraft and constraints on the budget available for flying time.

The contribution and co-operation from DMG members involved, helped ensure that the count was well planned and implemented. DCS recognises the willing input from DMG members and in particular the invaluable help and assistance from the DMG Co-ordinators throughout the count operation.

Density maps, helicopter route maps and a CD containing all the count data and photographs will be sent to the DMG chairman / secretary and any estates wishing to view these should contact the DMG secretary / chairman.

- In four days 887 groups totalling 47,204 deer were counted, by direct observation and photography, in the East and West Grampian count area. In addition, the ground count undertaken by the East Grampian sub Area 4 members counted 1,454 stags 4,241 unclassified deer.
- 43,740 deer (72% of groups) were counted using photographs with 3,464 deer counted by visual counting.
- 834 photographs were used for counting which are available to DMG members and some of these photographs could be used to classify hinds and calves.

While stags classified from photographs are entered in the stag totals, an unknown proportion of males (mostly knobbers) will appear in the unclassified total.

ROLE	DAY 1	DAY 2	DAY 3	DAY 4
	<b>HELI 1</b>	<b>HELI 1</b>	<b>HELI 1</b>	<b>HELI 1</b>
Navigator	Donald Fraser	Donald Fraser*	Donald Fraser	Donald Fraser
Camera	David Balharry	David Balharry*	David Balharry	David Balharry
Recorder	Rae Grant	Rae Grant*	Rae Grant	Rae Grant
Observer/ counter	Michael Hone	* Swapped crews at 12.30 hrs	Kevin Simpson	Peter Fraser / Bruce Cooper
	<b>HELI 2</b>		<b>HELI 2</b>	<b>HELI 2</b>
Navigator	Iain Hope		Iain Hope	Iain Hope
Camera	Nick Reiter		Miles Davis	James Macleod
Recorder	Derrick Mackaskill		James Macleod	Derrick Mackaskill
Observer/ counter	Thomas MacDonnell		Graeme Cumming	
	<b>HELI 3</b>	<b>HELI 3</b>	<b>HELI 3</b>	<b>HELI 3</b>
Navigator	Alistair Macgugan	Alistair Macgugan	Alistair Macgugan	Alistair Macgugan
Camera	Miles Davis	Donald Hendry	Donald Hendry	Donald Hendry
Recorder	Donald Hendry	Dave Sutherland	Dave Sutherland	Dave Sutherland
Observer/ counter		Desmond Dugan	R Cumming / G Flynn	Philip Fernie
		<b>HELI 4</b>	<b>HELI 4</b>	<b>HELI 4</b>
Navigator		Harry MacNeill*	Harry MacNeill	Harry MacNeill
Camera		Miles Davis*	John MacPherson	John MacPherson
Recorder		Iain Hope*	Russel Cooper	Russel Cooper
Observer/ counter		* Swapped crews at 12.30 hrs	Peter Fraser / Ian Campbell	Eoin Smith /
		<b>HELI 5</b>	<b>HELI 5</b>	<b>HELI 5</b>
Navigator		Alan Corrigan	Alan Corrigan	Alan Corrigan
Camera		Nick Reiter	Nick Reiter	Nick Reiter
Recorder		Dave Bain	Dave Bain	Graeme Taylor
Observer/ counter		Colin Gibson / Neil Brown		Gordon Macgregor
	<b>GROUND TEAM</b>	<b>GROUND TEAM</b>	<b>GROUND TEAM</b>	<b>GROUND TEAM</b>
	John Craig	John Craig	John Craig	John Craig
	John Macpherson	John Macpherson	John Macpherson	Miles Davis – Ops room
	Iain MacDonald	Iain MacDonald	Graeme Taylor	John Macpherson
	Uni Maclean	Uni Maclean	D Elston	Graeme Taylor
	Graeme Taylor	Graeme Taylor	I Halliday	James Duncan
	Kirsty Willmitt	Kirsty Willmitt	M.C. Halliday	Balmoral Team x 10
	D Elston	D Elston	Kenny Willmitt	Glentana Team x 5
	I Halliday	I Halliday	Scott Barrie	Glendye Team x 6
	M.C. Halliday	M.C. Halliday	R.G Brand	Game International x 2
	Kenny Willmitt	Kenny Willmitt	David Lambie	
	Scott Barrie	Scott Barrie	James Duncan	
	R.G Brand	R.G Brand	Atholl x 6	
	David Lambie	David Lambie	Mar Lodge Team x 6	
	James Duncan	James Duncan	Glen fermate Team x 5	
	Peter Ferguson	Peter Ferguson	Game International x 3	
	Rothiemurchus Team x 2	Rothiemurchus Team x 2		
	Abernethy Team x 6	Abernethy Team x 6		
	SNH x 6	Game International x 3		
	Game International x 3			
	FCS x 2			
	Glenfeshie x 3			

## APPENDIX 1 : COUNT TEAMS

See count route map for helicopter day areas