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Done 19.4.88

BRIEFING NOTE ON DUCK HUNTING IN N.S.W

BACKGROUND

In early 1987, the N.S.W. Animal Welfare Advisory Council (A.W.A.C) was asked by the NSW Government to make recommendations regarding the future of duck and quail shooting in N.S.W, following a formal "Review of Duck and Quail Shooting." Notice of this review was advertised in June 1987 when submissions were requested (see Appendix A). No terms of reference were given for the Review, but the A.W.A.C. was to "base its recommendations on a thorough and reasoned evaluation of all aspects of the issue under consideration".

In the absence of terms of reference, the Council's Hunting Sub-Committee has apparently concentrated its attention on three aspects of duck and quail shooting in N.S.W., and given some attention to two further aspects. Conservation, lead poisoning and cruelty have been considered as major issues, and hunter ethics and duck shooting on rice fields have received consideration as more minor issues.

Research officers, Dr R. Kingsford and S. Briggs, and the Principal Wildlife Management Officer, Dr L. Llewellyn, from the Service provided scientific advice to the Sub-Committee on several aspects of duck and quail hunting. It is felt that recommendations from A.W.A.C. should be scientifically based. Below is provided brief comment on the available scientific evidence on relevant aspects of duck and quail hunting in N.S.W. The accompanying report provides the details.

COMMENT

The Service runs a cooperative research programme, with CSIRO and other state wildlife authorities designed to assess the effect of hunting on game waterfowl numbers. This programme includes aerial survey of waterbirds in eastern Australia, hunter surveys and collection of rainfall data. Most populations of game species are distributed away from hunting. Any decision to halt duck and quail shooting on conservation grounds is unsubstantiated by available evidence. Similarly, the conservation of the two rare waterfowl species, blue-billed duck and freckled duck is not under threat. Large concentrations of freckled duck have been found in the inland during regular aerial surveys.

The few numbers of non-game species shot each year do not constitute a conservation problem. Duck shooting on rice fields is not considered a conservation problem at present. A considerably more important conservation problem, to all waterbird species, is that of habitat loss.

The data from Lake Cowal indicate that lead levels in waterfowl populations are low in N.S.W.

Cruelty is an emotive issue which tends to be complicated by subjectivity; people ascribe human feelings to animals. The small amount of scientific data on this subject comes in two forms: lead pellets in live waterfowl and cripple rates from hunter surveys.

Between 6% and 19% of live-trapped ducks between 1957 and 1973, in a study in Victoria, contained lead pellets. This data cannot simply be extrapolated to N.S.W. in 1988. The number of birds affected in this state may be less.

For ducks, average cripple rates on opening day (1972-1987) at Lake Cowal and Barrenbox Swamp are 19%. These figures do not represent the number of birds that are left to die which are likely to be less. They have also declined from around 30% in 1972 to less than 10% in 1987.

In considering the debate on cruelty, it is essential that there are realistic estimates of the extent of suffering and number of birds affected. Such data are not available. The information available is only indirect. Decision-makers will be subject to criticism which cannot be rebutted or defended scientifically. Judgement about the degree of cruelty involved in game bird hunting is a moral issue that has to be assessed by society. Should such an argument be sustained, fishing is an area for which a much stronger cruelty argument could be mounted.

Two other aspects of duck hunting in relation to this Review warrant comment. First, should legal hunting be banned, the Service will lose management control of hunting. The Service considers that banning duck hunting will not prevent duck shooting. Hunting will instead become clandestine and unmanageable. Second, as waterfowl managers, the timing of the Review is noted with concern; it is to be released just prior to the usual opening of the annual duck season in 1988. This has made effective research and extension activity virtually impossible, and caused serious management problems in industries supplying sport shooters.

RECOMMENDATIONS

It is recommended that;

1) duck shooting seasons continue to be held based on scientific advice with adequate time for effective extension activity,
2) the populations be monitored for initially 5 years and
3) lead levels in waterfowl be monitored

ACCOMPANYING REPORT TO BRIEFING NOTE
ON DUCK AND QUAIL HUNTING IN N.S.W.

This is a presentation and discussion of the scientific data available on conservation, lead poisoning, cruelty and ducks on rice fields.

1. Conservation

a. Game species

The service is involved in a state cooperative research programme to look at the effects of hunting on game species. A major component of the programme, the aerial surveys of waterbirds in eastern Australia, has run for 5 years (Braithwaite et al. 1985a, 1985b, 1986, 1987; Kingsford et al. in prep). There are, as yet, insufficient data for final statistical analysis (at least 8 years needed) but information from the air surveys has already been important to management of waterfowl. For example, the surveys have shown that the large aggregations of most waterfowl species are on wetlands in western and north-western N.S.W., and other inland areas of Australia. They are here subject to little or no hunting as most hunting is in southern N.S.W. (Briggs et al. 1985) and Victoria.

Preliminary statistical analyses have shown that most annual variation in game duck numbers can be explained by rainfall variation (Briggs and Holmes 1988). So far, there is no evidence of any effect of hunting off-take on game duck numbers in N.S.W.

In the conservation debate about the impact of hunting, it is also important to determine whether mortality from hunting is additive or compensatory (i.e. would shot birds have died anyway from natural causes or is hunting an added cause of mortality?). The run of data is too short to answer this question in N.S.W., as yet. Evidence from North America indicates that hunting mortality is compensatory (Anderson and Burnham 1976) although the matter is still controversial (Caughley 1985).

b. Rare species

There are two rare waterfowl species in N.S.W., the blue-billed duck and freckled duck. The former is unlikely to be mistaken for a game species as it seldom flys and is unpalatable. Freckled duck conversely can be mistaken for black duck, a game species. Large concentrations of freckled duck have been found in the inland, away from hunting. However, hunting areas need to be surveyed on a local local scale to determine if there are any concentrations of rare species.

c. Non-game species

A few non-game waterbirds are shot each year during the duck hunting season. This would have little effect on overall numbers of a species and is not a conservation problem.

II. Lead poisoning

Lead poisoning may occur when waterfowl ingest lead pellets, mistaking them for grit. Grit is ingested naturally to help with digestion. This issue has been raised as a problem (Levy and Mark 1986), on evidence from South Australia and North America.

The incidence of lead and lead poisoning at one of the most popular hunting areas in the state, Lake Cowal, during the open season of 1987 were investigated (Kingsford et al. in prep). Three independent methods of sampling; sediment sampling, gizzard analysis and liver analysis were used. The detailed results are provided in Appendix B, together with comparative results from the literature. Lead levels in waterfowl at Lake Cowal are low and would not justify a change from lead to steel shot on this wetland.

III. Cruelty

Data comes from two indirect measures: lead pellets in live waterfowl Norman (1976) and cripple rates from hunter surveys (Braithwaite & Norman 1974, 1976, 1977,1981; Briggs et al. 1985; Norman et al. 1984). Cripples are defined as birds that are downed but not retrieved by the original hunter. Neither of the above approaches deal with cruelty per se; both are indirect measures. The findings of both are presented.

Norman (1976) found that between 6% and 19% of live-trapped ducks in Victoria contained lead pellets, depending on the species. It should be noted that this would also include birds which had ingested lead pellets (i.e contained in the digestion system). This reduces the percentages above if the debate is about cruelty. He showed that the presence of lead pellets in body tissues caused no apparent increase in subsequent mortality due to shooting nor in distance travelled. However, black duck and grey teal with pellets were slightly, but significantly lighter than those without pellets. Chestnut teal showed the reverse relationship. Also, when the location of the pellets in the body was investigated in 97 birds, 51.2% of the pellets (percentages above) were external. Data for this study were collected between 1957 and 1973. In recent times, there has been an increase in the number of automatic shotguns so it is likely that the number of birds carrying lead pellets is fewer because of higher shooting success. Also, Norman's (1976) data cannot be simply extrapolated to New South Wales. There are many more duck shooters in a smaller area in Victoria and hunting pressure is consequently higher there than in N.S.W.

Average cripple rates on opening day (1972-1987) at both Lake Cowal and Barrenbox Swamp are 19%. Rates have declined at both sites from around 30% in 1972 to less than 10% in 1987. Further details are given in Appendix C. These figures do not represent the number of birds that are left to die. The percentages of ducks which are wounded are likely to be much less than the reported "cripple rates" for the following reasons; many hunters pick up ducks that have been reported as cripples by other hunters; hunters with dogs are particularly efficient at

retrieving ducks shot but not retrieved by another hunter and; some ducks are shot dead but are never found because they land in dense vegetation, such as lignum. Quail hunters report virtually no crippling because they almost always use dogs for retrieving.

IV. Duck hunting on Ricefields

Ducks are shot over ricefields in southern N.S.W. as a pest control measure. Most of this hunting is performed by experienced hunters and cripple rates are close to zero. We do not consider duck shooting on rice fields is a conservation problem at present because the off-take in these areas is relatively low (Briggs 1977; unpublished data).

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APPENDIX A.

THE CANBERRA TIMES, SATURDAY, JUNE 27, 1987 — B13

Canberra Times

REVIEW OF DUCK AND QUAIL SHOOTING

The NSW Animal Welfare Advisory Council has been asked by the NSW Government to make recommendations regarding the future of duck and quail shooting in NSW.

The Council comprises twelve members drawn from animal welfare organisations, professional bodies, the farming community, industry and government department with an interest in animal welfare.

The policy of the Council is to base its recommendations on a thorough and reasoned evaluation of all aspects of the issue under consideration.

The Council therefore invites written submissions on the future of duck and quail hunting in NSW from interested parties. Consideration will be given to requests for oral submissions.

Further information may be obtained on (02) 2310922 ext 4228 and 4487.

Written submissions must be received no later than 1st September, 1987 and should be posted to:

Ms. D. Williams
Secretary, NSW Animal Welfare Advisory Council
Department of Local Government
8-18 Bent St
SYDNEY 2000

JUNE 27, 1987

APPENDIX B.

Table 1.
Lead levels in livers from game birds in America, and Australia. Variance data are given in Kingsford et al. (in prep).

COUNTRY	SPECIES	LEVEL (ppm)	AUTHORS
America	waterfowl	6.0	Shealy et al. 1982
	4 Species Waterfowl	86-131	Zwank et al. 1985
	Mallard	6-20	Longcore et al. 1974
	Ring-necked duck	0.87	Mautino & Bell 1986
	Ring-necked duck	0.24	Mautino & Bell 1986
	Canada geese	6-53	Bagley et al. 1967
	Canada geese	5-32	Cooke & Trainer 1966
	Canada geese	8-42	Karstad 1971
	Canada geese	102	Szymczak & Adrian 1978
	Lesser Scaup	46	Anderson 1975
	Sora rails	0.07-2.9	Stendell et al. 1980
	Bald eagles	23-38	Kaiser et al. 1980
	Condor	35	Janssen et al. 1986

Australia		Open Day	Easter	(Kingsford et al. in prep)
	Pacific black duck			
	male	0.43	0.19	
	female	0.37	0.14	
	Grey teal			
	male	0.44	0.09	
	female	0.50	0.08	
	Maned duck			
	male	0.23	0.26	
	female	0.20	0.14	

Lead poisoning criteria

U.S Fish & Wildlife Serv. (1985) considered that if more than 5% of waterfowl species have more than 2ppm lead in the liver then the wetland should be closed lead shot hunting.

Longcore et al. (1974) considered that levels of 6-10ppm were indicative of lead poisoning and Zwank et al. (1985) considered that levels below 0.05ppm were negligible.

APPENDIX C.

Table 1.

Percentage of cripples as percentage of hunter bags at Lake Cowal and Barrenbox Swamp on opening day 1972–1987. Definition of cripples as birds that are downed but not retrieved by original shooter.

YEAR	LAKE COWAL	BARRENBOX SWAMP
1972[1]	32	31
1973[2]	8	27
1974[1]	14	21
1975[3]	26	25
1976[3]	18	27
1977[4]	27	19
1978[4]	14	27
1979[5]	26	16
1980[5]	17	16
1981[5]	DRY	21
1982[6]	DRY	16
1983	NO SEASON	
1984[6]	No data	11
1985[6]	16	11
1986[6]	18	10
1987[6]	9	8

Many ducks shot by one hunter are retrieved by another hunter (S. Briggs, observation). Also note open season data from Briggs S., Maher, M. and Davey, C. (1985) and S. Briggs (unpublished) for 1984 (8%), 1985 (6%) and 1986 (8%).

[1] Data from Braithwaite and Norman (1974)
[2] Data from Braithwaite and Norman (1976)
[3] Data from Braithwaite and Norman (1977)
[4] Data from Braithwaite and Norman (1981)
[5] Data from Norman, Briggs and Braithwaite (1984)
[6] Data from S. Briggs, unpublished

Table 2.

Lead levels in environment (wetland sediment) in America and Australia.

COUNTRY	SITE	LEVEL (shot/ha)	AUTHORS
America			
	California	48,000	Bellrose 1959
		84,000	
		62,000	
		22,000	
		85,000	
		147,000	
		52,000	
	Minnesota	44,000	
		40,000	
		59,000	
		0	
		158,000	
		15,000	
	Wisconsin	292,000	
		114,000	
		9,000	
	Manitoba	126,000	
		42,000	
	Michigan	29,000	
	Indiana	100,000	
		115,000	
	Illinois	0	
		4,000	
		12,000	Wills & Glasgow 1964
	Missouri		
	(uncultivated)	303,000	Fredrickson et al. 1977
	(cultivated)	65,000	
		20-30,000	Mudge 1984
	New Mexico	99,000	Schranck & Dollahon 1975
	South-east Colarado	8,000	Szymczak & Adrian 1978
	Louisiana	31,000	Zwank et al. 1985
Australia	Lake Cowal		
	(high hunting pressure)	18,000	Kingsford et al.(in prep)
		16,000	
	(low hunting pressure)	3,000	

Table 3.

Percentage of gizzards with at least one ingested pellet of waterfowl from America and Australia.

COUNTRY	SPECIES	CONDITION	%	AUTHORS
America				
	All species	shot	6.6	Bellrose 1959
	Lesser Scaup	dead	9.3	Anderson 1975
	4 duck species	shot	8.9	White & Stendell 1977
	Ring-necked ducks	shot	33.8	Baker & Thompson 1979
	Ruddy duck	shot	1.0	Perry & Artmann 1979
	4 species	dead	74.0	Zwank et al. 1985
	duck species (1973-1984)		8.9	Sanderson & Bellrose 1986
	geese species (1973-1984)	range	0.1-44	Sanderson & Bellrose 1986
	2 species		2.1	Estabrooks 1987
	Sora rail		7.4	Stendell et al. 1986
Australia				
Queensland				
	4 species	shot	4.2	Lavery 1971
Victoria				
	10 species	shot	0.1	Norman 1971
	11 species	shot	0.5	Norman & Brown 1985
New South Wales				
Lake Cowal				
	Pacific Black duck	shot	2.6	Kingsford et al. (in prep)
	Grey Teal	shot	0.8	
	Maned Duck	shot	1.9	
		Total	1.5	

Lead poisoning criterion

U.S Fish & Wildlife Serv. (1985) considered that if more than 5% of waterfowl species have at least 1 shot in the gizzard, then the wetland is closed to hunting.