

### 1986 YUKON TRAPPER QUESTIONNAIRE REPORT

3.1

| Population Level | Weight (R <sub>i</sub> ) | Index (%) |
|------------------|--------------------------|-----------|
| Abundant         | 9                        | 100       |
| Common           | 5                        | 55.56     |
| Scarce           | 1                        | 11.11     |
| Not Present      | 0                        | 0         |

Brian G. Slough

Index =  $(\sum \frac{R_i}{n}) / 9n \times 100\%$ , where n = number of valid responses.

#### INTRODUCTION

Questionnaires on animal abundance and population changes have been mailed to all licenced trappers annually, in April or May, since 1977. The trappers are asked to answer questions based on their own experience over the winter trapping season just ended on the trapping concession(s) for which they had licences. The questionnaire has undergone several changes over the years, including the addition of questions on several species of furbearers, their prey, and on trapping effort. Prizes were offered as incentives 1982-1985. The response rate was initially low (10-20%) but has increased since 1982 to a high of 52.2% in 1985. In 1986, 335 out of 716 (46.8%) of trappers contacted returned their questionnaires.

#### ANALYSES

The response frequencies are tabulated for each species and territory-wide population indices calculated from weighted averages. The index values are calculated as follows:

82.4% of the respondents trapped in 1985-86, showing little change from the previous two seasons (Table 1). Trapline locations of group area trappers was requested for the first time. This information, not presented here, may serve to delineate management units within the large group areas at a future date. Information obtained on the arctic fox population was not insufficient to warrant comment or analysis (only one response was obtained from each community of Aklavik, Ft. McPherson and Old Crow). The locations of several fisher

Table 1. Summary of Responses to Questions on Trapping.

| Population Level | Weight (R <sub>i</sub> ) |   |       | Index (%) |
|------------------|--------------------------|---|-------|-----------|
| Abundant         | 1984                     | 9 | 1985  | 100       |
| Common           | 77.9%                    | 5 | 82.4% | 55.56     |
| Scarce           | 22.1%                    | 1 | 17.6% | 11.11     |
| Not Present      |                          | 0 |       | 0         |

Index =  $(\sum_{i=1}^{i=n} R_i) / 9n \times 100\%$ , where n = number of valid responses.

| Population Change | Weight (R <sub>i</sub> ) |    |       | Index (%) |
|-------------------|--------------------------|----|-------|-----------|
| Increase          | 1984                     | 1  | 1985  | 100       |
| Stable            |                          | 0  |       | 0         |
| Decrease          | 21.7%                    | -1 | 19.1% | -100      |
|                   | 78.3%                    |    | 80.9% |           |

Index =  $(\sum_{i=1}^{i=n} R_i) / n \times 100\%$

If you answered "Yes", please answer the following questions on lynx trapping:

The response frequencies are compared between years with a log-likelihood ratio goodness of fit test, using the G-statistic ( $\alpha=0.05$ ). The G-statistic is also used to test the significance of population change responses compared to a "no change" situation ( $H_0$ ).

The snowshoe hare population level indices were correlated with known snowshoe hare densities (C.J. Krebs, unpublished data) in the Kluane area in an attempt to determine the reliability of the indices.

## RESULTS

82.4% of the respondents trapped in 1985-86, showing little change from the previous two seasons (Table 1). Trapline locations of group area trappers was requested for the first time. This information, not presented here, may serve to delineate management units within the large group areas at a future date. Information obtained on the arctic fox population was not insufficient to warrant comment or analysis (only one response was obtained from each community of Aklavik, Ft. Mcpherson and Old Crow). The locations of several fisher

Table 1. Summary of Responses to Questions on Trapping.

Did you trap last winter?

|               | <u>1984</u>  | <u>1985</u>  | <u>1986</u>  |
|---------------|--------------|--------------|--------------|
| Yes           | 77.9%        | 79.1%        | 82.4%        |
| No            | <u>22.1%</u> | <u>20.9%</u> | <u>17.6%</u> |
| n (Responses) | 272          | 345          | 301          |

If you answered "No", was it because:

|                           | <u>1984</u>  | <u>1985</u>  |
|---------------------------|--------------|--------------|
| Fur populations were down | 21.7%        | 19.1%        |
| other reasons             | <u>78.3%</u> | <u>80.9%</u> |
| n (Responses)             | 60           | 68           |

If you answered "Yes", please answer the following questions on lynx trapping:

|   | <u>1984</u> | <u>1985</u> |
|---|-------------|-------------|
| I did not set lynx traps                  | 16.0%       | 17.6%       |
| I set a reduced number of lynx traps      | 52.3%       | 52.2%       |
| I set as many lynx traps as in past years | 31.7%       | 30.2%       |
| n (Responses)                             | 199         | 262         |

ACKNOWLEDGEMENT

I thank Emily Kotyluk for her SAS data entry.

REFERENCE

Brand, C.J. and L.B. Keith 1979. Lynx demography during a snowshoe hare decline in Alberta. J. Wildl. Manage. 43:827-849.

sightings were reported and serve to illustrate the localized distribution and sparse abundance of the species. The sightings are generally in the southeast Yukon, (6 traplines in the Liard basin) with others, possibly cases of mistaken identity (?), reported near Teslin, Johnson's Crossing, North Canal Road, Whitehorse (?), Donjek River (?), Tatlmaln Lake (?) and Dawson City (?).

Population indices were calculated for the 12 widely distributed furbearers and 3 prey species (Table 2). Historic indices are appended for each species (Appendix I). All species were "stable" in 1985-86, with the exception of otter, mink, red fox and coyotes, which showed declining populations, and ermine, mice and red squirrels, which increased. Marten were reportedly stable, although the population level was down from 1984-85, when they were increasing. Conservation Area marten showed an increase, however some trappers wrote in on their forms that this was due to releases of transplanted marten. Lynx, snowshoe hare and grouse showed no significant changes from the previous season.

The snowshoe hare population level index was highly correlated with known hare densities at Kluane Lake for the period 1977-1984 (Table 3:  $r = 0.84$ ,  $p > 0.0085$ ). This helps to substantiate the validity of the indices as measures of abundance and population trend. Brand and Keith (1979) found a higher correlation ( $r = 0.97$ ) between a regional questionnaire index and hare population densities in Alberta.

MCA - Marten Conservation Area

**ACKNOWLEDGEMENT**

I thank Emily Kotyluk for her SAS data entry.

**REFERENCE**

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Table 2. 1986 Population Indices.

| <u>Population Level</u>   |                             | <u>Population Change</u>  |                              |
|---------------------------|-----------------------------|---------------------------|------------------------------|
| <u>Species</u>            | <u>Index</u>                | <u>Species</u>            | <u>Index</u>                 |
| ABUNDANT.....             | 100                         | INCREASED.....            | 100                          |
| • Mice                    | 67.06                       | Marten (MCA) <sup>1</sup> | 26.19                        |
| Red Squirrel              | 66.29 <sup>2</sup> decrease | Red Squirrel              | 20.41                        |
| Ermine                    | 55.63 <sup>2</sup> decrease | Mice                      | 17.47                        |
| COMMON.....               | 55.56                       | Ermine                    | 16.32 <sup>2</sup> decrease  |
| Wolf                      | 54.35                       | Marten                    | 10.34 <sup>2</sup> decrease  |
| Marten                    | 48.17 <sup>2</sup> decrease | Wolf                      | 9.02                         |
| Grouse                    | 47.40                       | Grouse                    | 6.48                         |
| Wolverine                 | 43.92                       | Snowshoe Hare             | 6.05                         |
| Beaver                    | 42.93                       | Beaver                    | 2.93                         |
| Red Fox                   | 35.24                       | NO CHANGE.....            | 0                            |
| Snowshoe Hare             | 34.52                       | Muskrat                   | -6.79                        |
| Mink                      | 32.61                       | Wolverine                 | -7.29                        |
| Lynx                      | 31.96                       | Lynx                      | -11.25                       |
| Muskrat                   | 29.49                       | Otter                     | -11.69 <sup>2</sup> decrease |
| Otter                     | 29.15                       | Mink                      | -14.71                       |
| Coyote                    | 26.79                       | Red Fox                   | -23.31 <sup>2</sup> decrease |
| Marten (MCA) <sup>1</sup> | 20.42                       | Coyote                    | -23.45                       |
| SCARCE.....               | 11.11                       | DECREASED.....            | -100                         |
| NOT PRESENT               | 0                           |                           |                              |

MCA - Marten Conservation Area

<sup>1</sup>The 0 marten quota area (concessions 94, 120, 134, 204-206, 213, 217, 218, 221-226, 265-291, 293-310, 323-326, 409-413), and the 10 marten quota area (concessions 208, 209, 214, 215, 219, 227, 292, 312, 317-321, 324, 327-329, 331), in the southwest Yukon.

<sup>2</sup>Significant difference from 1985 (G-statistic,  $\alpha = 0.05$ ).

Table 3 Correlation Between Mean Snowshoe Hare Densities per Hectare for April 1 at Kluane Lake Area\* (6 unmanipulated grids) and Hare Population Level Index (PLI).

| Year | Year | Mean Hare Density | PLI   |
|------|------|-------------------|-------|
|      | 1977 | .024              | 36.7  |
|      | 1978 | 0.95              | 56.9  |
| Year | 1979 | 0.99              | 69.0  |
| 1977 | 1980 | 2.31              | 65.6  |
| 1978 | 1981 | 2.61              | 78.4  |
| 1979 | 1982 | 0.79              | 60.1  |
| 1980 | 1983 | 0.22              | 28.0  |
| 1981 | 1984 | 0.25              | 30.5  |
| 1982 |      |                   | 34.52 |
| 1983 |      |                   |       |
| 1984 |      |                   |       |
| 1985 |      |                   |       |
| 1986 |      |                   |       |

r=0.84 P>0.0085.

\*C.J. Krebs, Unpublished data.

Population Change

| Year | Increased | Stable | Decreased | Total Responses | Index  | G* |
|------|-----------|--------|-----------|-----------------|--------|----|
| 1977 | 37        | 17     | 7         | 61              | 49.18  |    |
| 1978 | 52        | 13     | 4         | 69              | 69.57  |    |
| 1979 | 47        | 14     | 6         | 67              | 61.19  |    |
| 1980 | 75        | 45     | 4         | 124             | 57.26  | *  |
| 1981 | 67        | 46     | 7         | 120             | 42.86  | *  |
| 1982 | 51        | 70     | 67        | 216             | -17.31 | *  |
| 1983 | 32        | 127    | 41        | 200             | -68.42 | *  |
| 1984 | 46        | 54     | 99        | 199             | -26.63 | *  |
| 1985 | 110       | 54     | 64        | 268             | 17.16  | *  |
| 1986 | 88        | 67     | 71        | 246             | 6.05   |    |

Appendix I Furbearer Population Indices - 1977 to present.

**SNOWSHOE HARE**

Population Level

| Year | Abundant | Common | Scarce | Not Present | Total Responses | Index | G* |
|------|----------|--------|--------|-------------|-----------------|-------|----|
| 1977 | 3        | 28     | 28     | -           | 59              | 36.72 |    |
| 1978 | 13       | 44     | 11     | -           | 68              | 56.86 | *  |
| 1979 | 26       | 34     | 6      | -           | 66              | 69.02 | *  |
| 1980 | 46       | 60     | 18     | -           | 124             | 65.59 | G* |
| 1981 | 89       | 45     | 11     | 2           | 147             | 78.38 | *  |
| 1982 | 89       | 106    | 54     | 7           | 256             | 60.11 | *  |
| 1983 | 21       | 76     | 175    | 23          | 295             | 28.02 | *  |
| 1984 | 18       | 75     | 139    | 14          | 246             | 30.53 |    |
| 1985 | 39       | 136    | 136    | 12          | 323             | 40.14 | *  |
| 1986 | 24       | 114    | 146    | 6           | 300             | 34.52 |    |
| 1983 | 21       | 82     | 157    | 24          | 284             | 36.67 |    |
| 1984 | 24       | 94     | 135    | 14          | 267             | 29.46 | *  |
| 1985 | 35       | 156    | 109    | 12          | 312             | 36.62 | *  |
| 1986 | 42       | 164    | 97     | 6           | 309             | 42.82 | *  |
|      |          |        |        |             | 301             | 47.40 |    |

Population Change

| Year | Increased | Stable | Decreased | Total Responses | Index  | G* |
|------|-----------|--------|-----------|-----------------|--------|----|
| 1977 | 37        | 17     | 7         | 61              | 49.18  |    |
| 1978 | 52        | 13     | 4         | 69              | 69.57  |    |
| 1979 | 47        | 14     | 6         | 67              | 61.19  |    |
| 1980 | 75        | 45     | 4         | 124             | 57.26  | G* |
| 1981 | 67        | 46     | 13        | 126             | 42.86  |    |
| 1982 | 51        | 70     | 87        | 218             | -17.31 | *  |
| 1983 | 32        | 127    | 41        | 200             | -68.42 | *  |
| 1984 | 46        | 54     | 99        | 199             | -26.63 | *  |
| 1985 | 110       | 94     | 64        | 268             | 17.16  | *  |
| 1986 | 88        | 87     | 73        | 248             | 6.05   |    |
| 1983 | 27        | 139    | 37        | 203             | -36.96 | *  |
| 1984 | 52        | 91     | 44        | 187             | -40.89 | *  |
| 1985 | 66        | 142    | 41        | 249             | 4.28   |    |
| 1986 | 57        | 149    | 42        | 248             | 8.73   |    |
|      |           |        |           | 247             | 6.48   |    |

RED FOX

| Year | Population Level |        |        |             | Total Responses | Index | G* |
|------|------------------|--------|--------|-------------|-----------------|-------|----|
|      | Abundant         | Common | Scarce | Not Present |                 |       |    |
| 1981 | 24               | 50     | 46     | 15          | 135             | 42.14 |    |
| 1982 | 32               | 119    | 67     | 16          | 218             | 45.11 |    |
| 1983 | 26               | 142    | 89     | 20          | 277             | 41.44 |    |
| 1984 | 24               | 103    | 94     | 13          | 234             | 39.17 |    |
| 1985 | 31               | 139    | 124    | 14          | 308             | 39.61 |    |
| 1986 | 19               | 126    | 125    | 22          | 292             | 35.24 |    |

| Year | Population Change |        |           | Total Responses | Index  | G* |
|------|-------------------|--------|-----------|-----------------|--------|----|
|      | Increased         | Stable | Decreased |                 |        |    |
| 1981 | 32                | 58     | 8         | 98              | 24.49  |    |
| 1982 | 34                | 118    | 18        | 170             | 9.41   |    |
| 1983 | 27                | 139    | 30        | 196             | -1.53  |    |
| 1984 | 11                | 119    | 54        | 184             | -23.37 | *  |
| 1985 | 40                | 162    | 39        | 241             | 0.41   | *  |
| 1986 | 16                | 149    | 71        | 236             | -23.31 | *  |

LYNX

| Year | Population Level |        |        |             | Total Responses | Index | G* |
|------|------------------|--------|--------|-------------|-----------------|-------|----|
|      | Abundant         | Common | Scarce | Not Present |                 |       |    |
| 1981 | 35               | 51     | 44     | 9           | 139             | 49.08 |    |
| 1982 | 57               | 111    | 68     | 20          | 256             | 49.31 |    |
| 1983 | 33               | 148    | 109    | 8           | 198             | 42.73 | *  |
| 1984 | 15               | 101    | 116    | 13          | 245             | 34.29 | *  |
| 1985 | 18               | 126    | 173    | 8           | 325             | 29.99 |    |
| 1986 | 13               | 120    | 143    | 23          | 299             | 31.96 | *  |

| Year | Population Change |        |           | Total Responses | Index  | G* |
|------|-------------------|--------|-----------|-----------------|--------|----|
|      | Increased         | Stable | Decreased |                 |        |    |
| 1981 | 56                | 47     | 8         | 111             | 43.24  |    |
| 1982 | 69                | 95     | 30        | 194             | 20.10  | *  |
| 1983 | 51                | 77     | 114       | 242             | -26.03 | *  |
| 1984 | 29                | 76     | 100       | 205             | -34.63 | *  |
| 1985 | 63                | 106    | 105       | 274             | -15.33 | *  |
| 1986 | 46                | 129    | 74        | 249             | -11.24 | *  |



**MARTEN**

Population Level

| Year | Abundant | Common | Scarce | Not Present | Total Responses | Index | G* |
|------|----------|--------|--------|-------------|-----------------|-------|----|
| 1981 | 32       | 58     | 25     | 20          | 135             | 49.63 |    |
| 1982 | 65       | 85     | 52     | 42          | 244             | 48.36 |    |
| 1983 | 49       | 103    | 80     | 52          | 284             | 40.53 | *  |
| 1984 | 34       | 90     | 71     | 43          | 238             | 38.61 |    |
| 1985 | 113      | 108    | 61     | 35          | 317             | 56.71 | *  |
| 1986 | 67       | 121    | 71     | 36          | 295             | 48.17 | *  |
| 1985 | 28       | 131    | 131    |             |                 | 37.94 |    |
| 1986 | 15       | 114    | 149    |             |                 | 32.61 |    |

Population Change

| Year | Increased | Stable | Decreased | Total Responses | Index  | G* |
|------|-----------|--------|-----------|-----------------|--------|----|
| 1981 | 19        | 61     | 17        | 97              | 2.06   |    |
| 1982 | 30        | 105    | 26        | 161             | 2.48   |    |
| 1983 | 30        | 107    | 42        | 179             | -6.70  |    |
| 1984 | 23        | 80     | 63        | 166             | -24.10 | *  |
| 1985 | 118       | 108    | 13        | 239             | 43.93  | *  |
| 1986 | 66        | 124    | 42        | 232             | 10.34  | *  |
| 1985 | 24        | 191    |           | 219             | -4.18  |    |
| 1986 | 18        | 167    |           | 185             | -14.71 |    |

**CONSERVATION AREA MARTEN**

Population Level

| Year | Abundant | Common | Scarce | Not Present | Total Responses | Index | G* |
|------|----------|--------|--------|-------------|-----------------|-------|----|
| 1981 | 0        | 2      | 5      | 12          | 19              | n.s.  |    |
| 1982 | 4        | 3      | 18     | 29          | 54              | 14.20 |    |
| 1983 | 1        | 5      | 37     | 36          | 79              | 9.99  |    |
| 1984 | 1        | 6      | 29     | 30          | 66              | 9.93  |    |
| 1985 | 6        | 7      | 37     | 25          | 75              | 11.56 |    |
| 1986 | 3        | 13     | 33     | 19          | 68              | 20.42 |    |
| 1985 | 32       | 84     |        |             | 284             | 32.90 |    |
| 1986 | 24       | 81     |        |             | 286             | 29.49 |    |

Population Change

| Year | Increased | Stable | Decreased | Total Responses | Index  | G* |
|------|-----------|--------|-----------|-----------------|--------|----|
| 1981 | 1         | 4      | 0         | 5               | n.s.   |    |
| 1982 | 3         | 12     | 4         | 19              | -5.26  |    |
| 1983 | 6         | 8      | 9         | 23              | -13.04 |    |
| 1984 | 6         | 11     | 9         | 26              | -11.54 |    |
| 1985 | 15        | 23     | 4         | 42              | 26.19  | *  |
| 1986 | 15        | 23     | 4         | 42              | 26.19  |    |
| 1985 | 29        | 128    |           | 201             | -7.46  |    |
| 1986 | 31        | 144    |           | 221             | -6.79  |    |

**WOLF**

Population Level

| Year | Abundant | Common | Scarce | Not Present | Total Responses | Index | G* |
|------|----------|--------|--------|-------------|-----------------|-------|----|
| 1981 | 55       | 65     | 24     | 3           | 147             | 63.79 |    |
| 1982 | 103      | 106    | 47     | 3           | 259             | 64.52 |    |
| 1983 | 106      | 143    | 44     | 2           | 295             | 64.52 |    |
| 1984 | 82       | 121    | 40     | 2           | 245             | 62.72 |    |
| 1985 | 76       | 152    | 90     | 6           | 324             | 52.61 | *  |
| 1986 | 70       | 149    | 68     | 8           | 295             | 54.35 |    |

Population Change

| Year | Increased | Stable | Decreased | Total Responses | Index | G* |
|------|-----------|--------|-----------|-----------------|-------|----|
| 1981 | 57        | 52     | 12        | 121             | 37.19 |    |
| 1982 | 100       | 87     | 18        | 205             | 40.00 |    |
| 1983 | 97        | 117    | 22        | 236             | 31.78 |    |
| 1984 | 68        | 99     | 42        | 209             | 12.44 | *  |
| 1985 | 73        | 120    | 75        | 268             | -0.75 |    |
| 1986 | 67        | 132    | 45        | 244             | 9.02  | *  |

**COYOTE**

Population Level

| Year | Abundant | Common | Scarce | Not Present | Total Responses | Index | G* |
|------|----------|--------|--------|-------------|-----------------|-------|----|
| 1981 | 17       | 31     | 43     | 37          | 128             | 30.47 |    |
| 1982 | 43       | 64     | 61     | 64          | 232             | 36.78 |    |
| 1983 | 60       | 85     | 66     | 65          | 276             | 41.51 |    |
| 1984 | 25       | 78     | 68     | 52          | 223             | 34.03 | *  |
| 1985 | 33       | 76     | 101    | 78          | 288             | 30.02 |    |
| 1986 | 26       | 67     | 101    | 84          | 278             | 26.78 |    |

Population Change

| Year | Increased | Stable | Decreased | Total Responses | Index  | G* |
|------|-----------|--------|-----------|-----------------|--------|----|
| 1981 | 24        | 35     | 3         | 62              | 33.87  |    |
| 1982 | 44        | 75     | 10        | 129             | 26.36  |    |
| 1983 | 62        | 79     | 24        | 165             | 23.03  |    |
| 1984 | 14        | 77     | 38        | 129             | -18.60 | *  |
| 1985 | 16        | 110    | 47        | 173             | -17.92 |    |
| 1986 | 19        | 122    | 68        | 209             | -23.44 |    |

\*G - statistic indicates response frequency distribution over categories significantly different compared to previous years.

The life projects report is tentative. Persons are not to be published in the Government of Yukon, identifying conclusions.

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