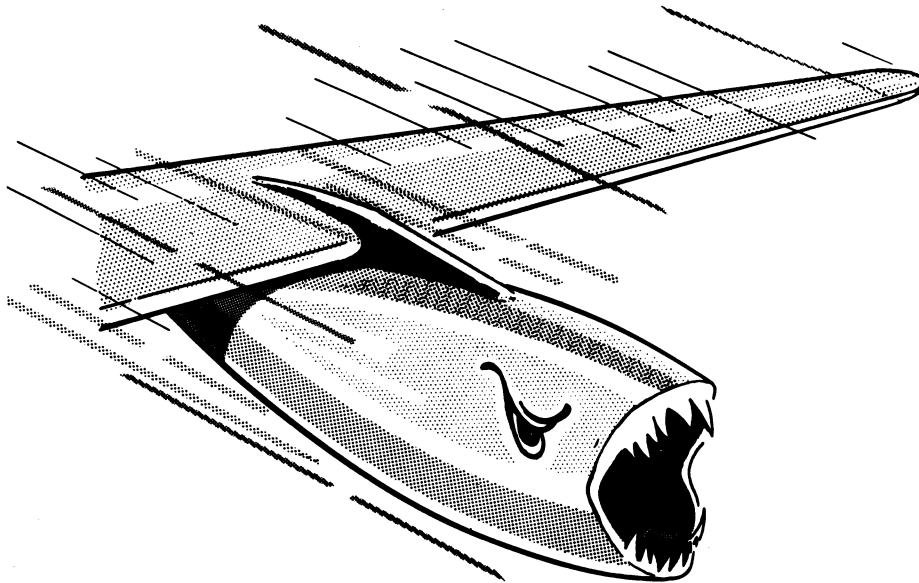




DEPARTMENT OF TRANSPORT

1971

BIRD HAZARDS TO AIRCRAFT



FOREWORD

This booklet has been prepared and distributed to pilots and operators to indicate the migratory flyways within Canadian Airspace together with the periods of time throughout the year when flocks of migrating birds may be encountered by aircraft in flight. It should be retained for ready reference, particularly since it is proposed to issue a Notice to Airmen (NOTAM) immediately prior to the commencement of both the Spring and the Autumn migrations each year in which specific reference to this publication will be made.

The Biological information contained in this booklet was furnished by the Canadian Wildlife Service, Department of Indian Affairs and Northern Development, Ottawa. Additional information on bird migration should be sent to the Canadian Wildlife Service.

SPRING MIGRATION

GEESE, SWANS, CRANES AND DUCKS

The accompanying charts depict the SPRING migration flyways and staging areas by which these birds generally proceed northward in Canadian Airspace. Indicated also are the approximate numbers of birds involved, the periods during which the flyways may be used by the various species, and the altitudes at and below which flocks may be encountered.

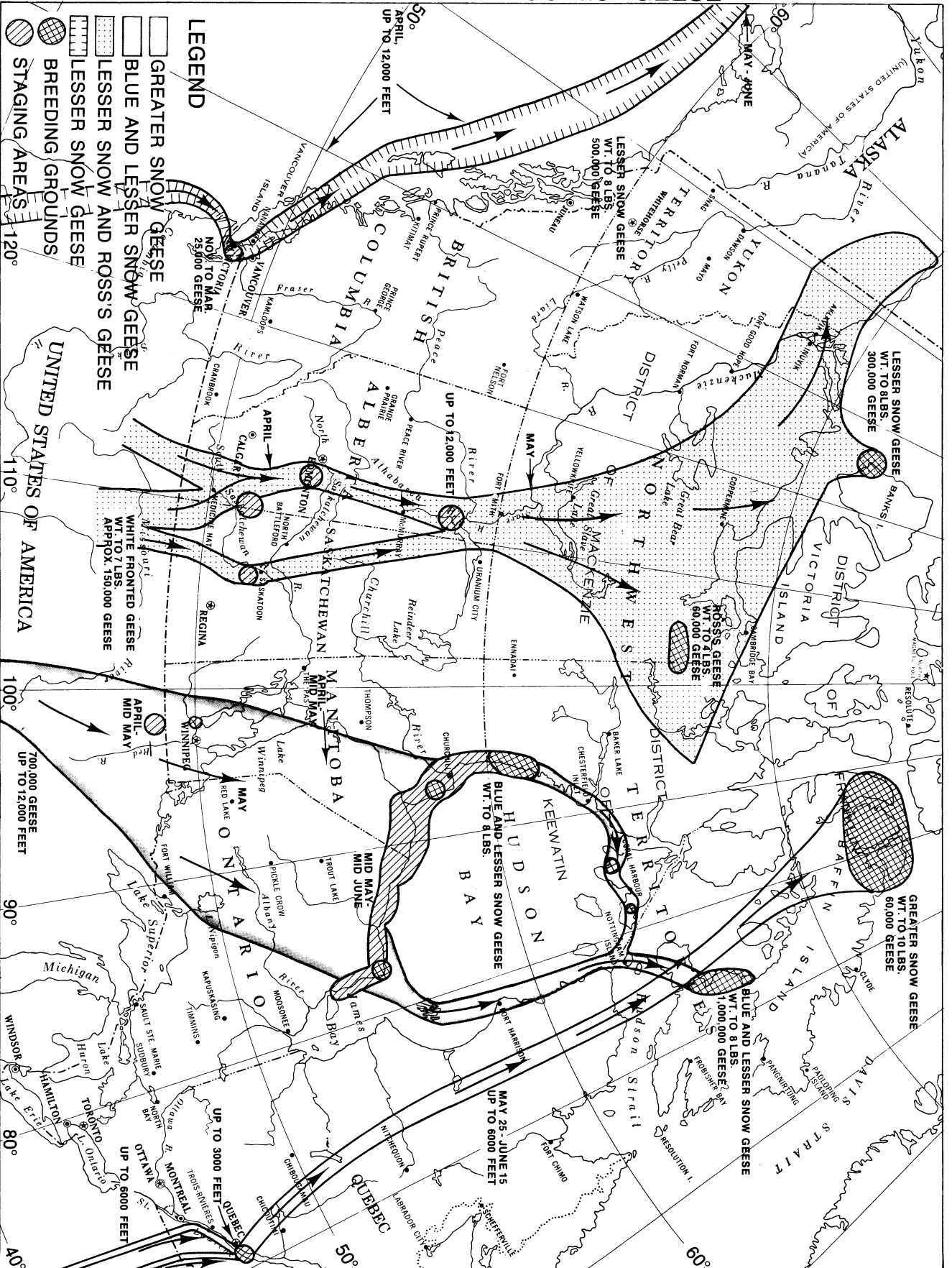
These large migrating birds are capable of flying above cloud and between layers at speeds of 30 - 45 knots. Flocks of 100 to 200 birds may be expected in flights strung out over several miles. Near the staging (resting and feeding) areas, they are generally encountered at or below 2000 feet above ground. Normally they leave the staging areas between dusk and midnight and during the first three hours after dawn, however, they may leave at any hour of the day or night, particularly after long periods of poor weather for migration. The longer the period of unfavourable weather the greater the likelihood that the birds will depart before really favourable weather moves over the area. Normally these birds will not leave a staging area against surface winds in excess of 10 knots. Major movements, involving hundreds of thousands of birds, often follow the passage of a ridge of high pressure.

The altitudes at which the birds may be encountered depend on the distance from the staging areas from which they have departed, assuming a rate of climb usually not more than 125 feet per minute or 100 feet per mile.

Ducks normally weigh from 1 to 4 pounds and the larger geese, swans and cranes may vary from $3\frac{1}{2}$ to 25 pounds.

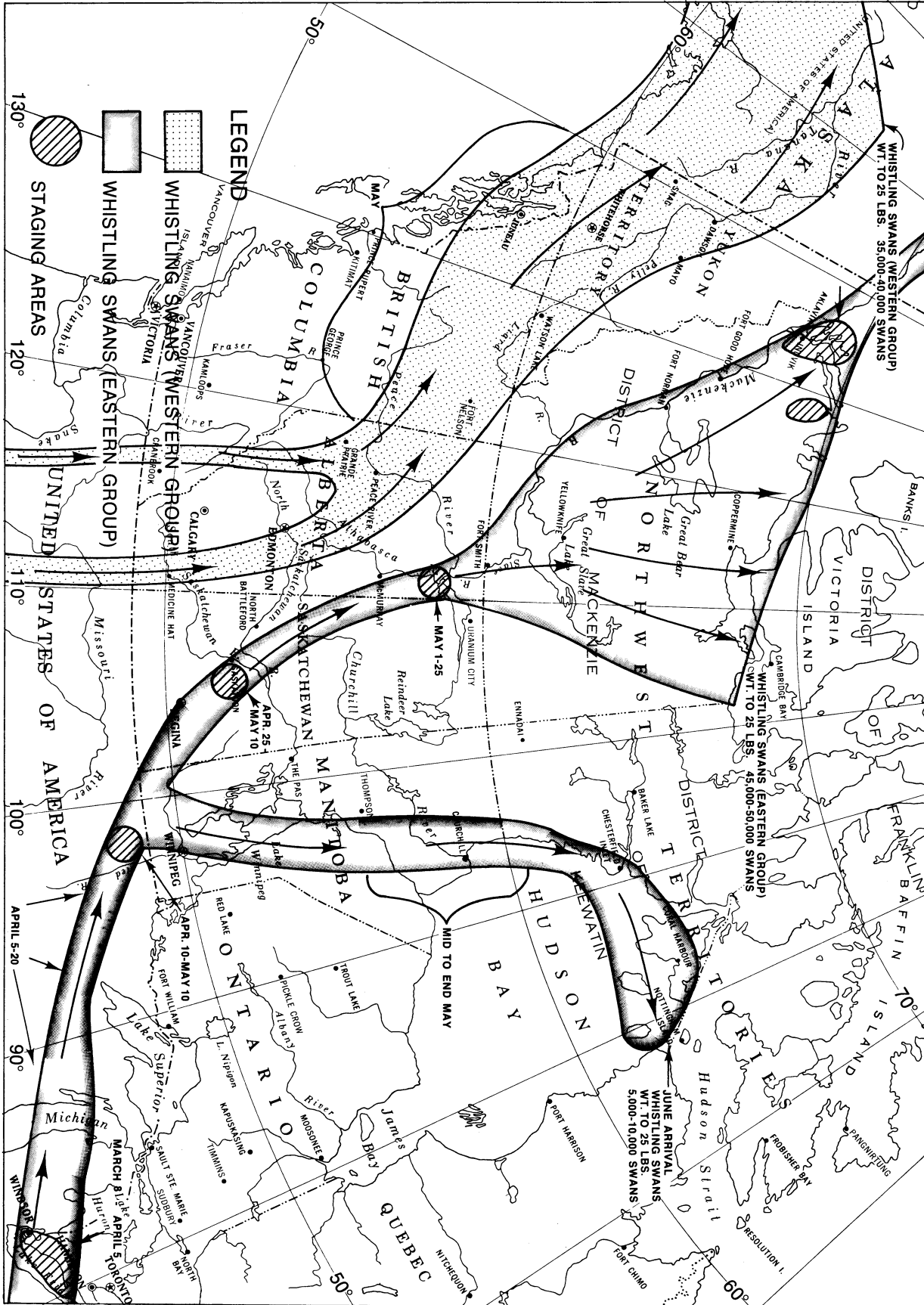
Pilots are urged to plan flights, in so far as is possible, to avoid the airspaces in which flocks of migrating birds may be expected during the periods indicated.

SPRING MIGRATION ROUTES - GEESE



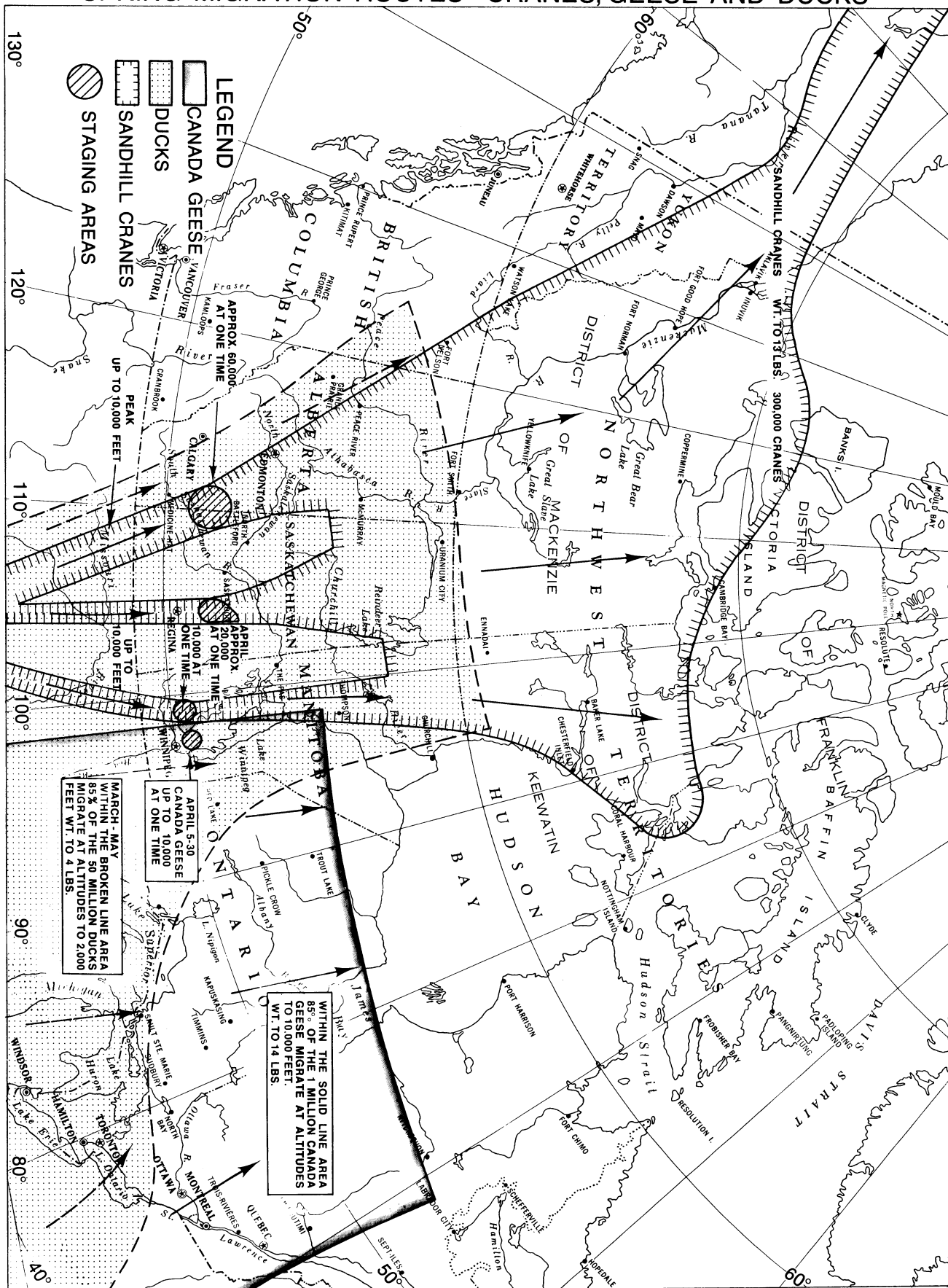
SPRING MIGRATION ROUTES - SWANS

(Flight Altitudes to 12,000 feet.)



Produced by Surveys and Mapping Branch
Department of Energy, Mines and Resources

SPRING MIGRATION ROUTES - CRANES, GEESE AND DUCKS



AUTUMN MIGRATION

GEESE, SWANS, CRANES AND DUCKS

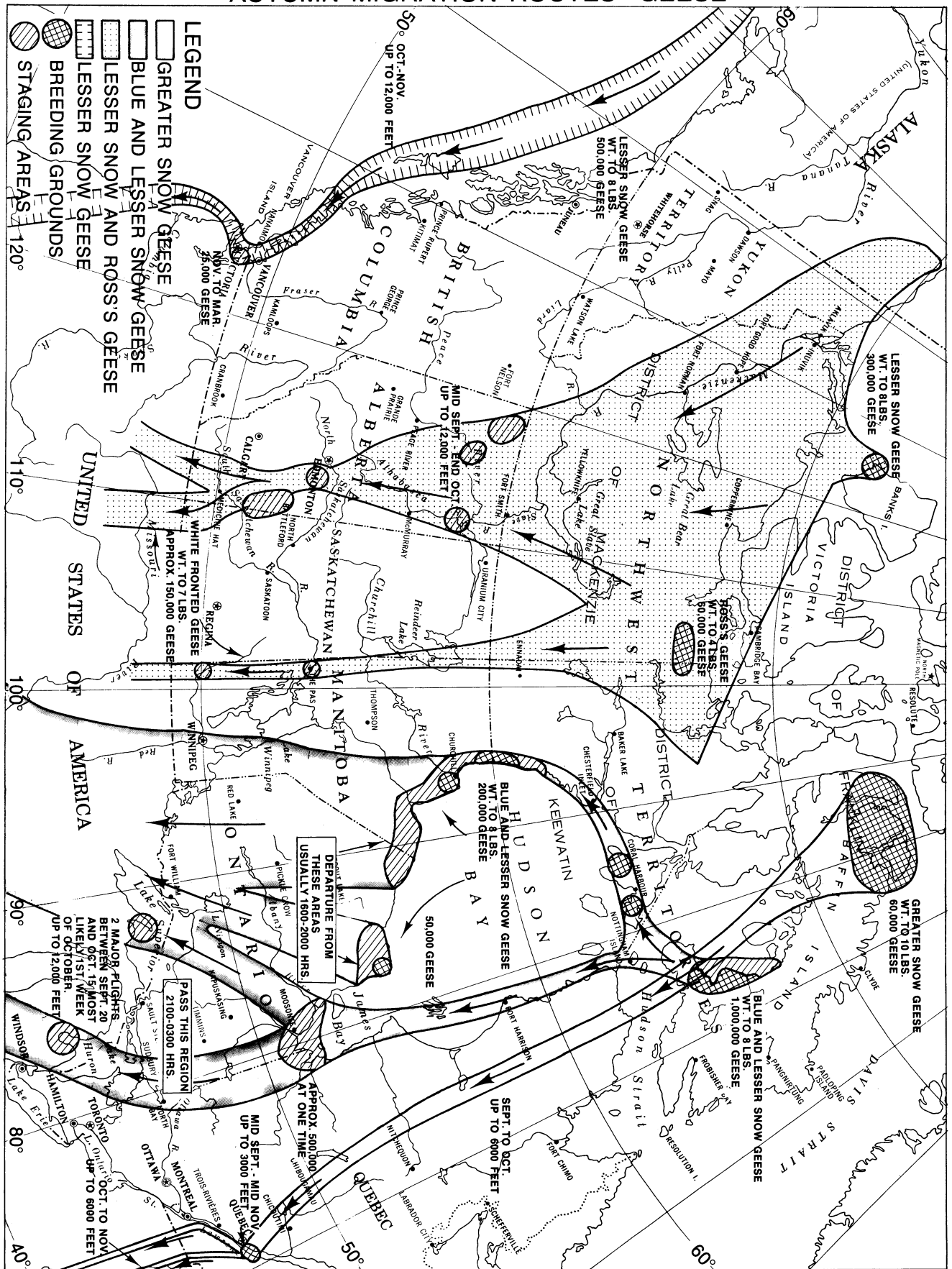
The accompanying charts depict the AUTUMN migration flyways and staging areas by which these birds generally proceed southward in Canadian airspace. Indicated also are the approximate numbers of birds involved, the periods during which the flyways may be used by the various species, and the altitudes at and below which flocks may be encountered.

Geese, swans and cranes normally move south with following winds. They depart from staging areas 12 to 24 hours after the passage of a cold front, especially if there is rapid clearing and there are strong northerly winds behind the front. Flight speeds will be wind speeds /plus 30 to 40 knots. The altitude of the flocks will depend upon the distance from the staging area using a rate of climb which will not exceed 125 feet per minute up to the optimum altitude for each particular flight. The birds take off from the staging areas in late afternoon for night flights. Occasionally however, with favouring winds they may fly by day as well. These birds weigh from $3\frac{1}{2}$ to 25 pounds.

Ducks migrate over the whole area indicated on the chart, at low altitudes, during September, October and November. They weight from 1 to 4 pounds.

Pilots are urged to plan flights, in so far as is possible, to avoid the airspaces in which flocks of migrating birds may be expected during the periods indicated.

AUTUMN MIGRATION ROUTES - GEESE



AUTUMN MIGRATION ROUTES - CRANES, GEESE AND DUCKS

