Goh Cheng Leong Chapter 23 – Cool Temperate Continental (Siberian) Climate YouTube Lecture Handouts

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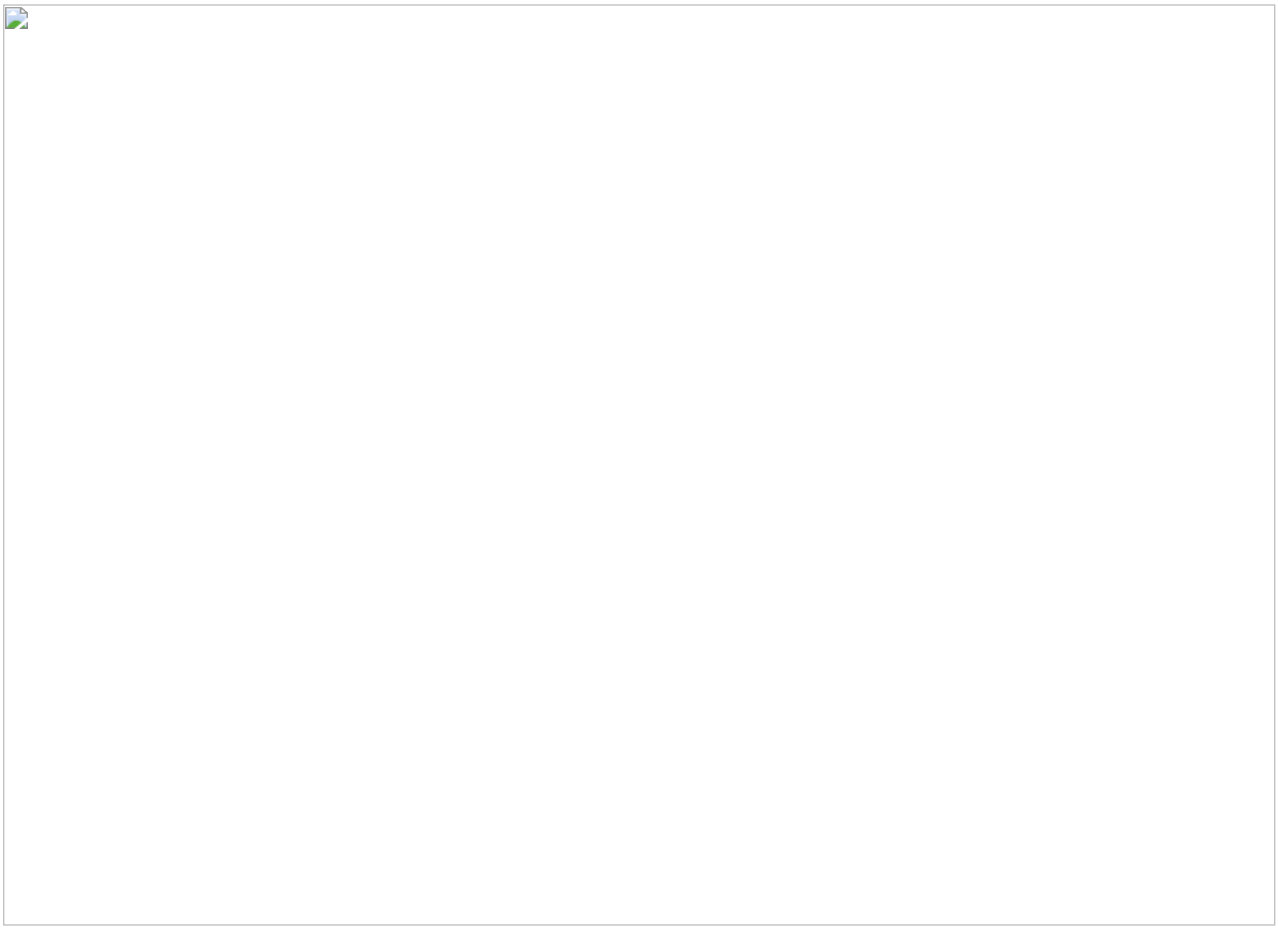
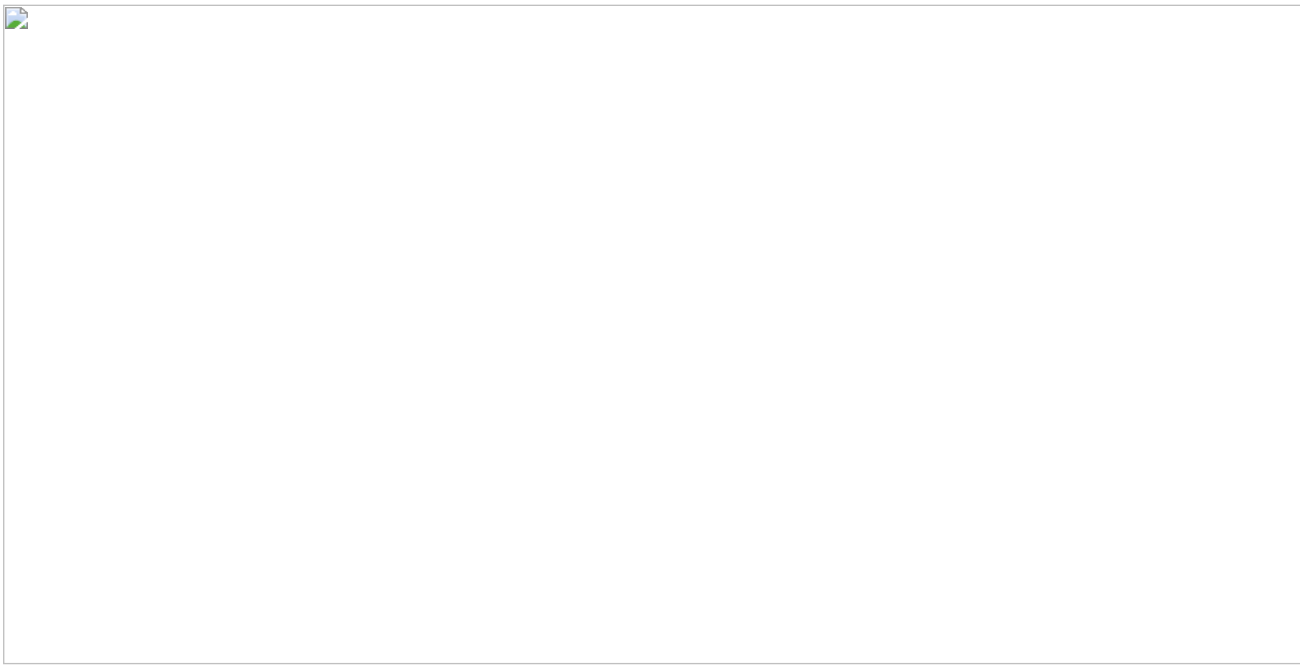




- Broad E-W spread
- Merge with Arctic tundra in north and Steppes in south
- Also called Sub-Arctic – evergreen coniferous – continuous belt in north
- Called Taiga – Siberia – similar climate in N. Europe, Sweden & Finland
- Absent in South Hemisphere – narrowness of southern continents in high latitude & strong oceanic influence
- Coniferous (S. Hemisphere) only in mountain uplands of S. Chile, New Zealand, Tasmania & SE Australia

Climate

- Cold long winters & cool brief summers
- Spring & Autumn are transitional
- Isotherm - 50 $^{\circ}F$ for warmest month form poleward boundary of Siberian climate and winter months are below freezing
- Annual range is 54 $^{\circ}F$ [(Moscow) and 73 $^{\circ}F$ Churchill – more northerly position]
- Due to extreme of temperature called – cold pole of earth
- N. America – less temperature extreme due to less east west stretch
- Lowest temperature of world in Verkhoyansk $(-90^{\circ}F)$
- Known for heavy snowfall
- Frost in Aug-Sept
- Volga River ice covered for 150 days & further north - Ob, Lena & Yenisey River ice covered for 210 days
- Winds – Blizzards of Canada & Buran of Europe 50 mph & at $(-50^{\circ}F)$ - snowflakes in lower atmosphere reduce visibility
- Siberia is sparsely populated – unbearable conditions

Precipitation

- 15 - 25 inches of annual precipitation
- Rainfall well distributed year round
- Summer maximum from conventional rainfall – interior are heated

- Winters – snowfall – mean temperature below freezing point
- Conifers – require little moisture & transpire less are best suited
- Low temperature, low evaporation & high relative humidity – even small precipitation is good for tree growth
- Factors affecting Precipitation
  - Altitude
  - Latitude
  - Proximity to poles
  - Exposure to Westerlies
  - Temperate monsoons
  - Penetration to cyclones
- European USSR – more than 20 inches – due to westerlies and cyclones
- Poleward & southward – amount decreases (north air is unable to hold moisture) and south has semi-arid steppes
- Permanent snowfields are absent (as in Alps & Himalayas) due to melting in spring & summer
- Frozen rivers are thawed causing rise in water level & floods
- BENEFITS: Snow is poor conductor of heat & protects ground from severe cold above & provide moisture when snow melts in spring
- When ground is ploughed, acidic podzolic soil is improved & some agriculture is possible

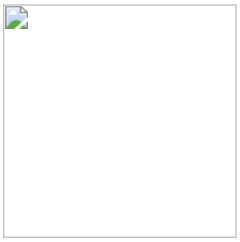
Vegetation

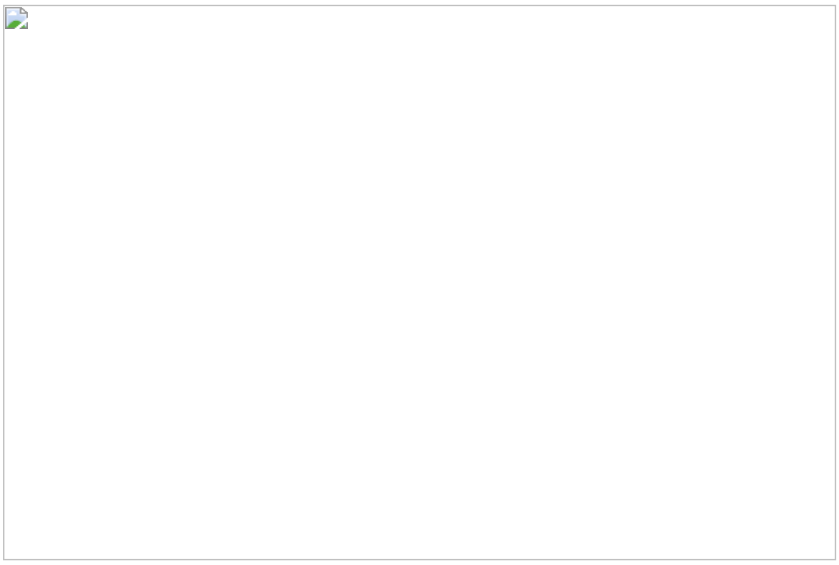
- Richest source of softwood – conifers – building construction, furniture, paper, pulp, rayon, matches
- Greatest softwood production – USSR, USA < Canada & Fenoscandian (Finland, Norway, Sweden)
- Wood pulp production (chemical & mechanical) – USA leads
- Newsprint – Canada leads (half of total production)
- Taiga (Siberia) – richest source of temperate softwood
- Occur in pure strands – good for commercial exploitation
- 4 main species – Pine (White, red, Scots, Jack & lodge pole) , Fir (Douglas & Balsam) , Spruce & Larch

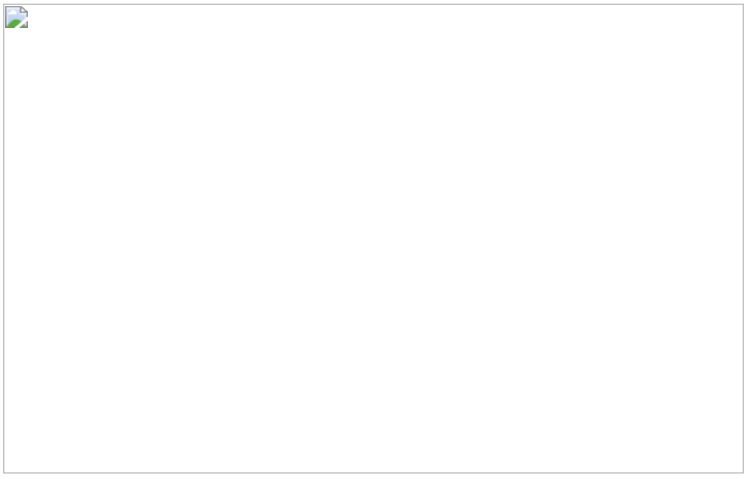
Coniferous

Uniform, straight, tall, upto 100 feet, towards poles they are spaced and turn to tundra vegetation

2-Year fructification cycle – seeds pollinated in one year and dispersed in next year



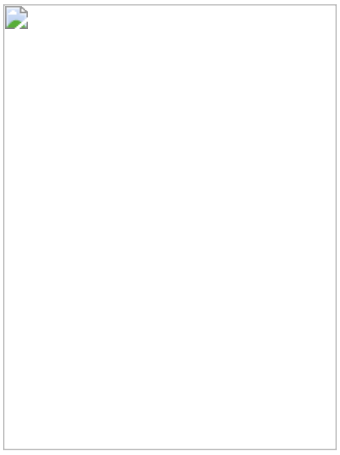




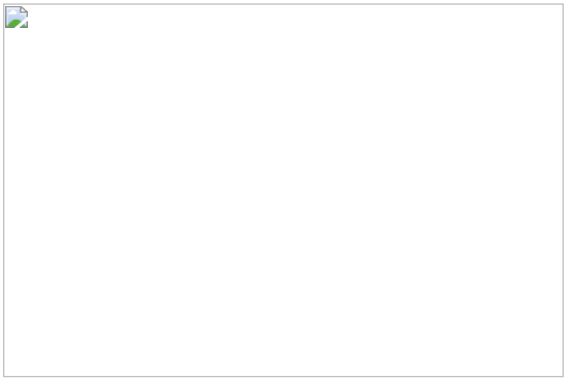
No annual replacement of new leaves as in deciduous – same leaves can remain for 5 years

Food stored in trunks and bark is thick to protect trunk from cold

Conical in shape to prevent snow accumulation & provide little grip to winds



Leaves are small, thick, leathery and needle-shaped



Little undergrowth is seen – acidic podzolic soil with excessive leaching, also due to absence of direct sunlight and short summers

Also seen in mountainous areas in temperate and tropical countries

On very steep slopes – soil is immature and conifers cannot survive

Pine, spruce & fir in north forest while larch in south

Homogenous, saves time and cost in exploitation

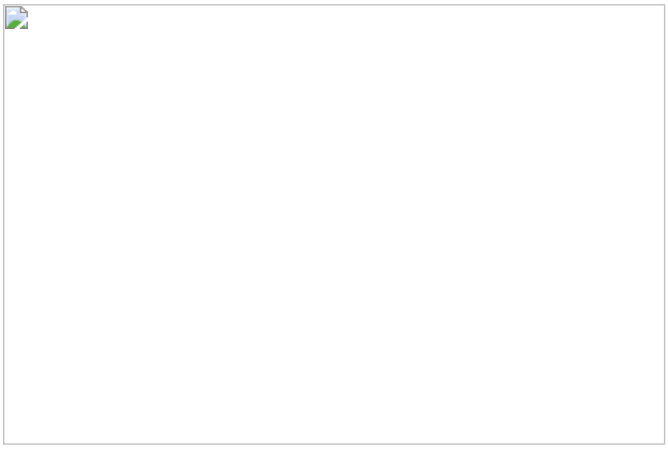
Economic Development

- Many areas are untouched in Canada, E. Europe and Asiatic Russia
- Lumbering – transported to saw mills
- Little agriculture – bordering steppes (barley, oats, rye) & root crops like potatoes
- Samoyeds & Yakuts (Siberia) & Canadians – hunting, fishing & trapping

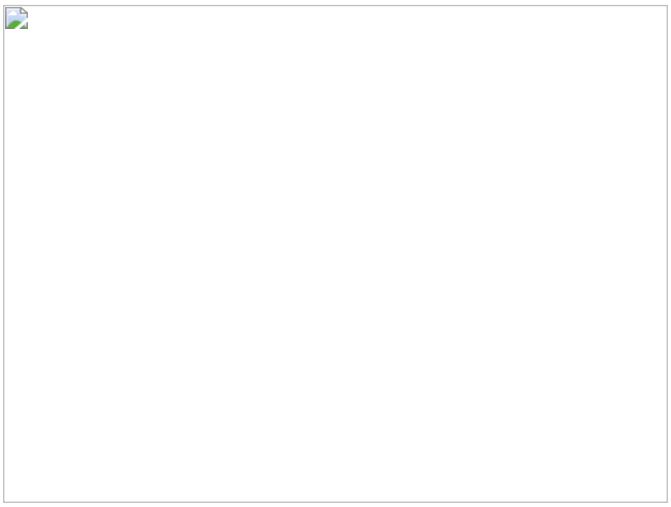
Trapping

- Fur-bearing animals (muskrat, ermine, mink, silver fox) – processed for handbags

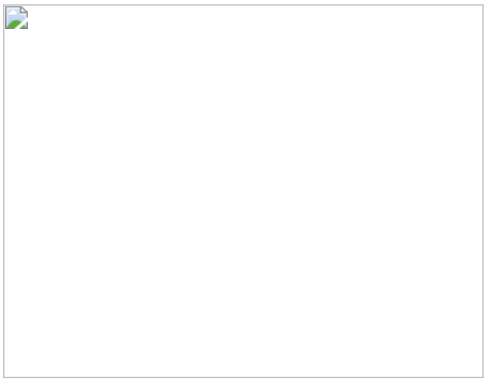
Silver Fox



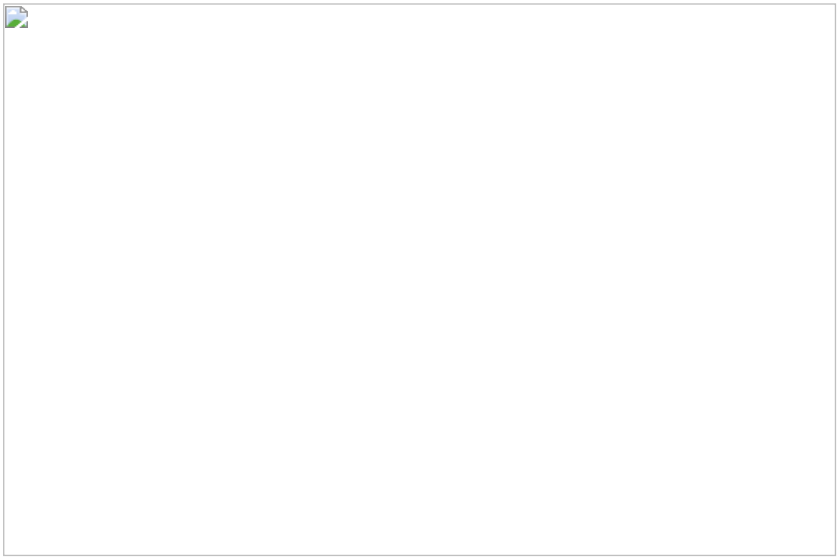
Ermine



Muskrat



Mink



Siberia – squirrels, otters, bears, sables, lynx, marten & fox (fur bearing)

When cold is keenest – quality and thickness of fur increases

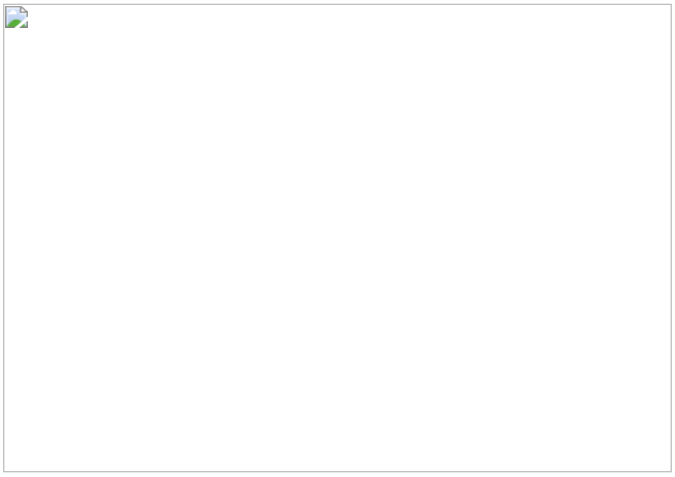
Most severe winter has finest furs with highest prices

Canada – trappers & hunters have automatic rifles & live in log cabins to track animals

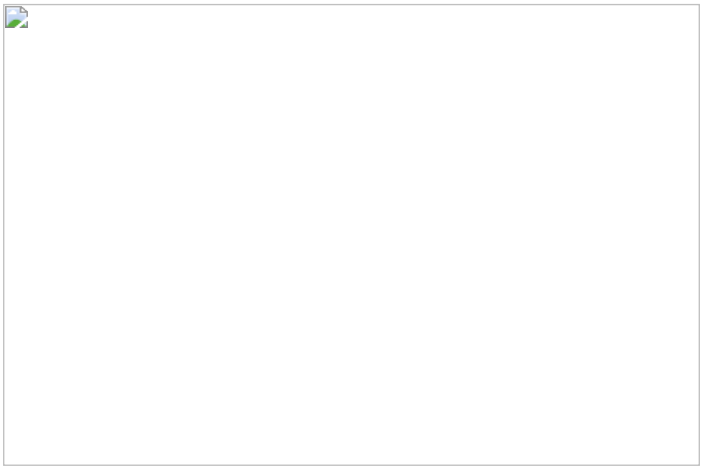
Canada has fur farms for regular supply of furs (now replaced hunting of wild animals in Siberia)

Lumbering

- Saw-milling – logs processed into timber and plywood
- Timber is pulped to make wood pulp for paper making and newsprint



- 1/4th of world's softwood is burnt for as fuel
- Used as industrial raw material
- Sweden – matches (major export)
- By-product of timber – chemically processed articles (rayon, paints, dyes, resins etc.)



- Occurs in winter when sap ceases to flow – felling becomes simpler

- Snow covered ground makes logging and haulage simple – dragged to rivers and float to saw mills downstream- use cheap HEP for saw mills
- Northern Sea route links Murmansk & Vladivostok via Arctic Ocean

Manishika