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91429



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Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Level 3 Geography 2024

91429 Demonstrate understanding of a given environment(s) through selection and application of geographic concepts and skills

Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of a given environment(s) through selection and application of geographic concepts and skills.	Demonstrate in-depth understanding of a given environment(s) through selection and application of geographic concepts and skills.	Demonstrate comprehensive understanding of a given environment(s) through selection and application of geographic concepts and skills.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL parts of the question in this booklet.

Pull out Resource Booklet 91429R from the centre of this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–10 in the correct order and that none of these pages is blank.

Do not write in the margins (// // //). This area will be cut off when the booklet is marked.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

Excellence

TOTAL 08

INSTRUCTIONS

Read the resource booklet about wildfires in Canada. Integrate geographic concepts and supporting evidence from any of the resources into your answers.

You may use the space below to plan your responses.

PLANNING

- ~ 9% of global forests
- ~ 7,300 forest fires annually
- ~ 2.5 million hectares annually
- 3% of wildland fires grow >200 hectares, accounting for 97% of total burned area.
- Most years lightning is responsible for $\frac{1}{2}$ of fires and 85% of burned area annually.
- Usually season is from spring - autumn but lengthening

QUESTION

- (a) Using evidence from the resources, describe the pattern (spatial or temporal) of Canadian wildfires.

From 1986-2015, Canada has experienced increasing wildfire concentrations, especially in the central and southwestern regions of the country. Although central Canada has had higher concentrations, especially the strip from western to eastern Canada (due to boreal forests in the region), this wildfire concentration intensified particularly from 2011-2015. Central wildfires have also occurred increasingly around the central regions of Canada, meaning that the area in which wildfires tend to occur ~~is~~ has expanded since from 1986 to 2015. Within the boreal forests, the distribution of these forests fires ~~is~~ appears ~~random~~ mostly ~~random~~ as a random pattern, except for the mentioned clustered pattern around central Canada. [Fig. 2,3] The pattern of increasing wildfire severity is not ~~all~~ evident also from the ~~the~~ temporal patterns / statistics related to the issue. From Fig. 4, the general pattern / trend is that the annual number of wildfires has gradually decreased from 1980 to 2021. Despite this, ~~the area burned by wildfires~~ ^{the} in 1980-2000 period, there was an approximate average of ~~8000~~ 8000 wildfires annually in Canada, compared to the approximate average of closer to 6000 in the 2001-2021 period. Despite this, the area burned appears consistently higher in the ~~200~~ 2001-2021 period (approximately 2 million hectares annually).

- (b) What are two different perspectives related to the wildfires, and why do people hold these perspectives?

Perspective 1: The political perspective on the issue is that wildfires are harmful for cultural and economic processes ~~or~~ within the country and ~~that~~ also harmful for the environment, which further decreases the quality of life and recreation. Justin Trudeau stated that "fighting climate change is necessary," ~~in~~ saying it was to support jobs and conserve fire-management funds. This is mostly an economic perspective, which ~~is~~ makes sense for the Prime Minister of Canada because he must be concerned with the social and economic wellbeing of Canada as a whole. Another ~~economic~~ perspective from Republican New York State Senator Joe Griffo was that Canadian wildfires were affecting the air quality over regions of the USA. His perspective was concerned with the health and quality of life of the people, which is a social ~~persp~~ perspective on the issue. As the State Senator, it makes sense that he ~~has concerns~~ values the wellbeing of the people, causing his social ~~persp~~ perspective. This perspective caused him to write to President Joe Biden in July 2023 to suggest ~~in~~ he work bi-laterally with Justin Trudeau to help manage the fires. In summary, the political perspectives presented by Justin Trudeau and Senator Griffo are primarily economic and social because their values are about the wellbeing of the nation and its economy.

extra
space

Perspective 2: The indigenous perspective on the issue is that wildfires are a healthy part of environmental processes that maintain the landscape, ecosystem and the safety of the area. When parts of the natural environment (like forests) become overgrown, controlled fires are an necessary process/tool to stimulate new growth, remove accumulating environmental debris and ensure the overgrown area will not fuel an unintentional catastrophic wildfire. This perspective is a result of long-held cultural practices and teachings, along with extensive experience using & managing the land. However, implemented restrictions now mean that these practices are banned, with the first total fire ban policy implemented in 1610. Canada's indigenous communities include First Nations, Métis and Inuit peoples. A citizen of Métis Nation and former wildland fighter holds the perspective that the fire restrictions contribute to the pattern of increasing wildfire intensity & severity. He refers to the experience and connection of the indigenous peoples to the land and long land management practices, again showing that the indigenous perspective is primarily an environmentally centered perspective shaped by cultural history. Also, the locations of indigenous communities means they are 'more than 10 times more likely to die in a forest fire than non-indigenous people'.

- (c) Wildfires are an environmental disaster with significant environmental, economic, and social costs. Evaluate the consequences of wildfires for people and the environment.

Social consequences: Wildfires pose an increasing threat to the security and safety of residents, especially Indigenous Canadian communities on reserve. 12.3% of the Canadian population is located in regions where residential housing and public structures border or are among forested areas, causing susceptibility to forest fires. In recent decades, wildfires have had more significant social consequences for First Nation reserves, who make up almost $\frac{1}{3}$ of wildfire evacuees. This social consequence is significant because it threatens the safety of affected communities and the historical homes of Canada's indigenous people. This further threatens their cultural practices, such as hunting in the forest and living off the land, as well as participating and holding cultural activities in the forest. 32.1% of on-reserve First Nation Communities are threatened increasingly by Canada's forest wildfires, so I think the social implications of the Canadian Wildfire issues is significant. These social implications further extend to infrastructure, such as water supplies, communication systems and transportation services. For example, the 2023 wildfires in the east coast of Canada, wildfires social implications stretched as far as New York

in the form of flight cancellations & delays at both Newark Liberty International Airport and La Guardia Airport in the USA. This disruption to infrastructure is a social impact as it ~~causes~~ ^{causes} inconvenience people such as tourists and travellers using flights to travel.

Economic consequences: The destruction of infrastructure is also of significant economic implications. For example, sawmills forced to close and disruption to oil production is very costly for the Canadian ~~so~~ economy, which is also partly a social consequence as it costs more to afford these basic resources. Fig. 12 shows that wildfire suppression costs are increasing, and are significantly more expensive than firefighting personnel and program costs. In 2015 the wildfire ~~suppression~~ ^{suppression} costs are approaching CA\$1.0 billion, showing that these costs, paired with economic ~~losses~~ ^{losses} from infrastructure damage/disruption are extremely costly for Canada's economy; I ~~would~~ ^{would} rank this ~~as~~ ^{as} more significant than the ~~social~~ ^{social} implications of the wildfires because ~~this~~ ^{this} the economic implications act on a greater scale, affecting more people than forest-bordering communities, ~~an~~ ^{an} especially when wildfires become severe.

Environmental ^{consequence} costs: I think the most significant environmental consequence is the air pollution caused by the wildfires, although this has also
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Extra space if required.

Write the question number(s) if applicable.

QUESTION
NUMBER

a than the 1980-2000 period, which mostly had about 1.5 million hectares burned annually, except for some very large fires such as 1980, 1981, 1989, 1994, 1995 and 1998 (I think this only suggests that large scale ~~extreme~~ fire control measures have advanced). This observable pattern suggests that (although there tend to be less annual fires), the severity of each fire is increasing along with the ~~sales~~ intensifying wildfire concentrations especially around central and southwestern Canada, this temporal pattern may suggest the shift of a cultural or environmental process ~~of~~ or factor which creates an environment better suited for starting ~~and~~ and sustaining fires.

b The air quality in New York soared above national air quality standards in June 6 and June 7, ²⁰²³ reaching above 300 $\mu\text{g}/\text{m}^3$. This affects people especially those with pre-existing conditions like asthma and heart disease, which is a reason for social concern.

b In summary, the Indigenous perspective is primarily ~~envo~~ environmental as it is concerned with the maintaining of the

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environment. This perspective has been shaped by their cultural practices & heritage, as well as their experience with land management and use, and their long practice of creating controlled fires to manage fire risks (by eliminating fire fuel hazards) paired with their current vulnerability to wildfires as a perceived result of the fire suppression policy.

c been linked to the mentioned economic and social impacts through interaction with the environment. The June 2023 wildfire outbreak was measured by AccuWeather to cause the worst intensity of soot & smoke in the north-eastern USA in more than 20 years. ~~This causes~~ This causes the mentioned economic &

Excellence

Subject: Geography

Standard: 91429

Total score: 08

Grade score	Marker commentary
E8	In this response, all parts of the question are answered. There is significant insight and integration of geographic concepts throughout. The information in the resource booklet is used to support ideas but the response does not solely rely on direct quotations, instead showing clear evidence of interpretation. Overall, there is evidence of clear thinking and evaluation.