Critically endangered animals 2016

May 16, 2019

1 Critcally endangered animals 2016

- Australia has many biomes
- These ecosystems are unique and fragile
- This notebook explores government data on critically endangered species

[2]:
```
import numpy as np
import pandas as pd
import geopandas as gpd
# import libpysal as lps
import matplotlib.pyplot as plt
```

[3]:
```
def import_csv_data(csv):
    with open(csv, 'r') as file:
        return pd.read_csv(file)

def import_excel_data(xls):
    with pd.ExcelFile(xls) as file:
        #print(file.sheet_names)
        return file.parse("regions")

def import_shape_data(shp):
    return gpd.read_file(shp)

species_data = import_csv_data('endangered_species_australia_2016.csv')
region_list = import_excel_data('regions-list.xlsx')
region_map = import_shape_data('ibra7regions/ibra7_regions.shp')

combined = species_data.merge(region_list, left_on='ibra7',␣
 ↪right_on='REG_CODE_7')
combined = region_map[['REG_CODE_7', 'SQ_KM', 'FEAT_ID', 'Shape_Leng',␣
 ↪'Shape_Area', 'geometry']].merge(combined, on='REG_CODE_7')
```

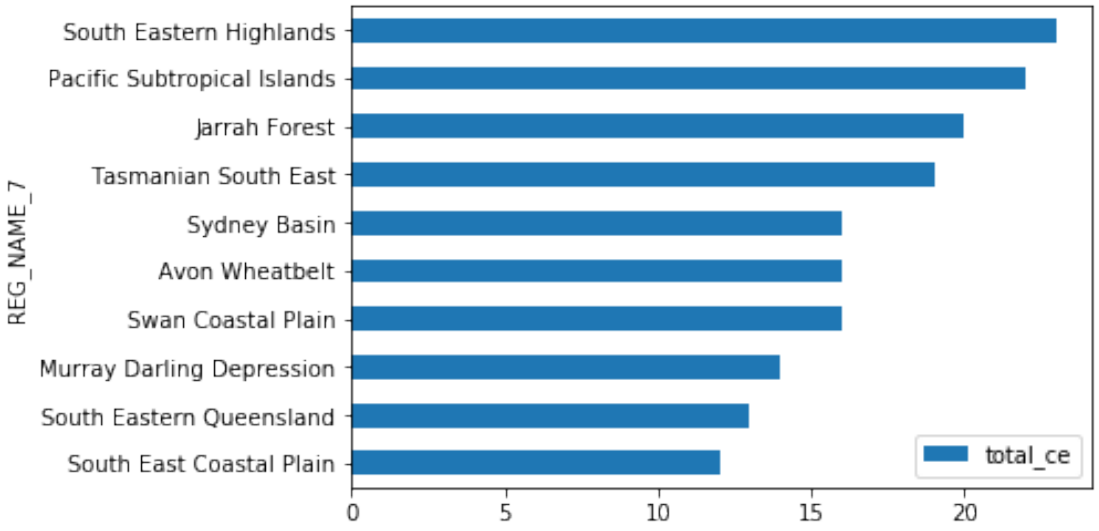
- the most critically endangered species are in the south eastern highlands
- we have fifteen regions with 10 or more critically endangered species.

[6]:
```
worst = combined[['REG_NAME_7','total_ce','REG_CODE_7']].
 ↪sort_values('total_ce', ascending=False).head(10)
worst.head(10)
```

[6]:

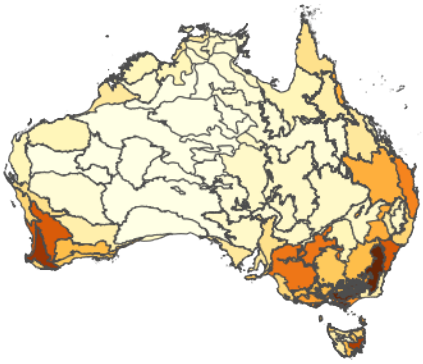
	REG_NAME_7	total_ce	REG_CODE_7
68	South Eastern Highlands	23	SEH
63	Pacific Subtropical Islands	22	PSI
42	Jarrah Forest	20	JAF
81	Tasmanian South East	19	TSE
74	Swan Coastal Plain	16	SWA
3	Avon Wheatbelt	16	AVW
75	Sydney Basin	16	SYB
48	Murray Darling Depression	14	MDD
69	South Eastern Queensland	13	SEQ
66	South East Coastal Plain	12	SCP

[7]:
```
fig1 = worst.sort_values('total_ce').plot.barh(x='REG_NAME_7')
```



The geographic distribution of critically endangered species by biome is rendered below, darker regions represent environments with more critically endangered species. There is a marked increase in numbers of threatened species around more densely populated areas on the east and west coasts.

[4]:
```
fig2 = combined.plot(figsize=(15,15), column='total_ce', cmap='YlOrBr',␣
 ↪edgecolor='0.3').axis('off')
```



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