

# Poles Prediction Map (Palairos study area)

Version: 0.10



## General

This map is a product of Wooden Poles Object Detection project.

The objectives of this project are:

- Detect spatially poles in the study area using aerial imagery.
- Distinguish different types of poles (electrical, lighting, telecommunication poles).
- Evaluate prediction labels with validation labels data.

Validation data were digitized and edited by T.A. Geoforce using aerial imagery 2019. Imagery Data copyright ©NES / Airbus, Maxar Technologies.

T.A. Geoforce used special specifications and criteria for features digitization and labels classification and may be different from the ground truth. The deep learning model is the result of 70%-30% training and validation split data procedure. The training data are not visualized on this map.

Validation study area: 0.657 km<sup>2</sup>

Validation study perimeter: 3.30 km

Palairos (Aetolia-Acarnania) is high vegetation and low-class urban area, with flat landscape.

## Evaluation

### Overall

Class	Telecommunication pole	Electricity pole	Lighting pole	Average
Precision	0.160	0.493	0.56	0.438
Recall	0.521	0.357	0.176	0.348
F1	0.268	0.410	0.268	0.334
Count error	1.89	0.26	0.68	0.165
Ground truth	46	84	51	181

### Counts

Class	Telecommunication pole	Electricity pole	Lighting pole	Total
Prediction labels count	133	62	16	211
Validation labels count	48	84	51	181

## Comments

The model's low precision is caused by:

- the minimum amount of train data
- the low number of training epochs.

Also, it is observed confusion between poles and building structures that have linear forms.

The density and distribution of predictions and validation data are very close, sign that the model's chip classification is very efficient. Finally, the validation's data accuracy is not 100%, that's why there are examples that the model is detecting poles, where are not included in the validation data.

## Legend

Prediction labels

Validation labels

Legend

Electricity pole

Lighting pole

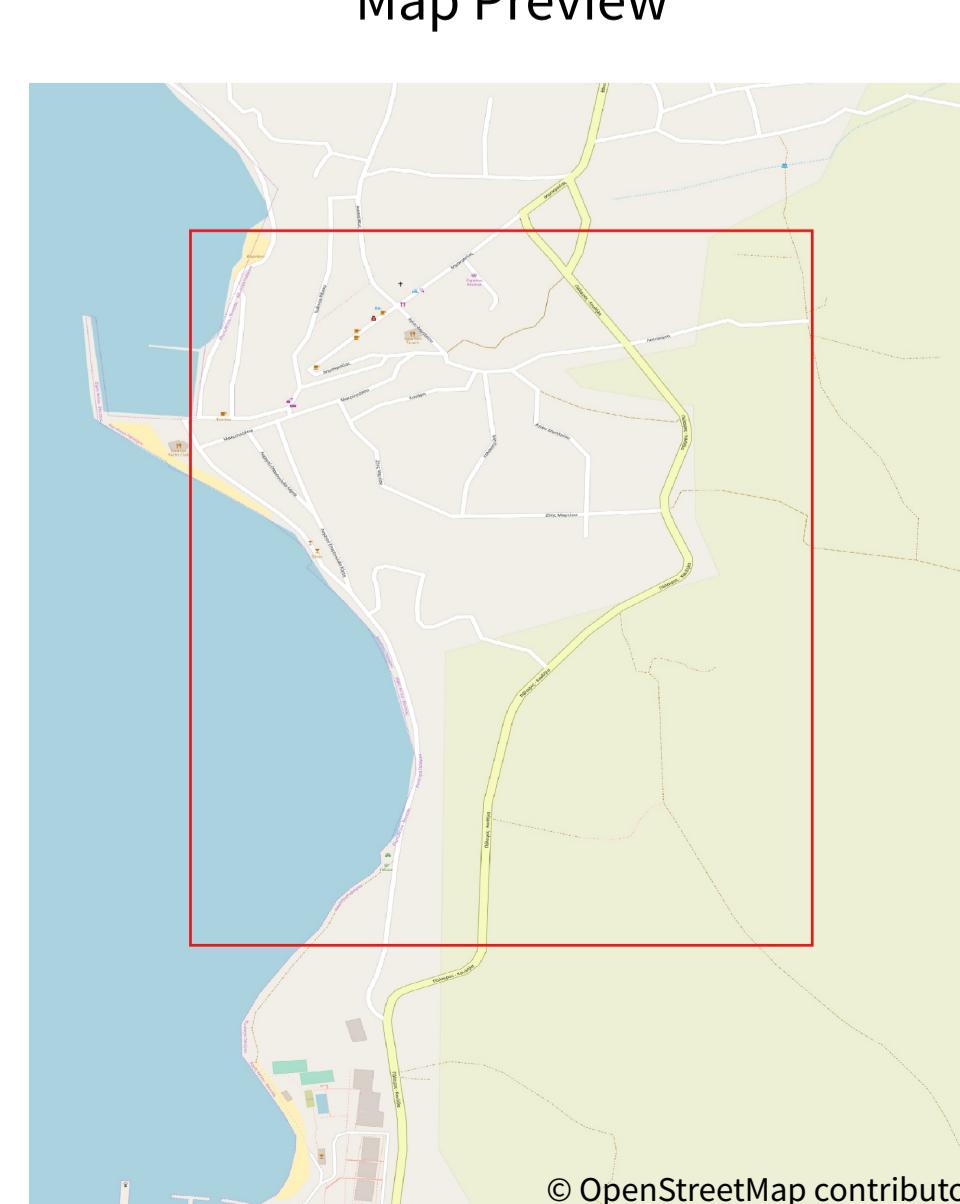
Telecommunication pole

Electricity pole

Lighting pole

Telecommunication pole

## Map Preview



Scale 1: 500

Coordinate Reference System: WGS '84

## Copyright Policy

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