CeRVEnE prevention systems and assistance plan to wildlife in case of fire disaster

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I. Introduction

CeRVEnE (*Regional Veterinary referral Center for non-epidemic emergencies*) was established in 2017 in the Italian Region of Campania, to improving the timely management of veterinary non-epidemic emergencies in case of disaster.

The "Fire Risk Assessment in Campania Region" (**FRAC**) aims at providing the Regional Government with a strategic tool able to gathering and supplying in short time all the necessary information to handle fire-related risks, and start safeguard actions and recovery of ecosystems, that involve wild and domestic biodiversity, based on the "Disaster Management Cycle" model principles (Fig. 1).

The present work intends to describe the conceptual framework and to introduce some preliminary results to be implemented to support the activities pursued by the FRAC Program.

The main scope of the system are: (i) to monitor the wooded areas under risk of fire in the so-called "Vesuvius' red zone", and (ii) to determine the OPtimal Evacuation Route for Animals (OPERA) in case of fire, for both domestic and wild animals.
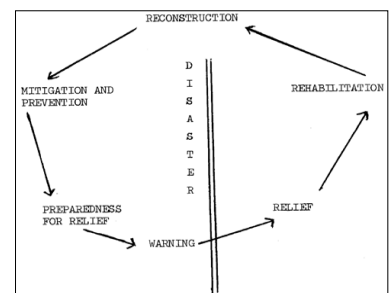

Fig. 1

II. Methodology and Objectives

Fig. 2

The necessary steps to accomplish the mentioned goals are:

1) the gathering of a set of specific information (e.g. Fuel parameters, wildlife population consistence, Digital Elevation Model Map, etc.);

2) an Evacuation Plan Model.

The first step is requested to create a Fire Propagation Map, through which characteristics and dynamics of a fire episode can be analyzed and evaluated (Fig. 2).

The second step can be figured out by also adding data related to both the urbanization rate and the road system development surrounding Mount Vesuvius (Fig. 3a & 3b).

To determine the OPERA such model has to be enriched by means of the mapping of the animal presence and the clear definition of type of vehicles requested to rescue the animal species involved in a fire episode.
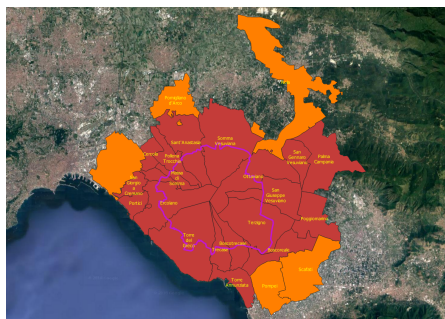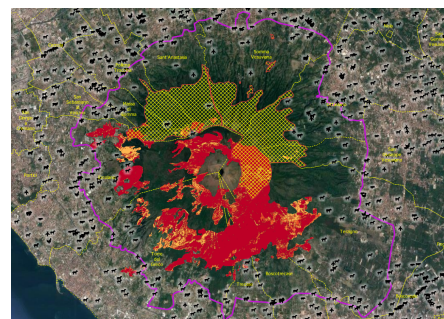

Fig. 3a

Fig. 3b

III. Conclusions

The development of the proposed integrated system becomes critical, as the fire risk has considerably increased in the last years in the whole Vesuvius' surrounding area, which features a unique combination of both animal and anthropic elements within a very delicate natural ecosystem.

The FRAC Program involved a big number of organizations that need to strictly interface with each other and, in case of fire, in a very short time.

The implementation of a specific integrated system to support the FRAC Program is supposed to boost an improvement for CeRVEnE's activities, pursuant the innovation perspectives coming with the effectual application of the Disaster Management principles.