To develop surveillance strategies for expanding populations of *Ceratitis capitata* to Central and Northern Europe an area in Dalmatia (South Croatia) was selected. During the first two years of the project, the characterization of the pilot sites was conducted.

The pilot area covering inland of Split – Dalmatia and Šibenik – Knin counties was selected based on historical data on medfly presence and historical data on medfly detections in marginal areas. The grid of traps to characterize the spatio-temporal patterns of the Medfly has been established and serviced since May 2020. A uniform grid of 10 X 10 km covering the region guided the deployment. The trapping network has been set up on 25 sites. Data about host type, habitat description, altitude and GPS position is collected for each site. Until the end of monitoring, a total of 25 pairs of traps were deployed to the Croatian pilot. Two trap types were used for medfly population monitoring: Tephri trap with 3 C lure (*trimethil ammin, putrescin and ammonium acetate)* and Jackson trap baited with *trimedlure* parapheromone. A trapping network has been set up across the margins of its current distribution where populations expand and contract their range seasonally. Traps were inspected in a weekly intervals and data on medfly males, females and other nontargeted insects were collected. The lures in traps were replaced following manufacturers recommendation. Some of the traps were moved and deployed to other trees, near the initial ones, around halfway through the monitoring period to be placed to appropriate hosts based on seasonality but remained within the same initial grid.

In 2021 the possibility of using the *FF-IPM* E-Trap as a system for early warning of Medfly captures in the region of Dalmatia, was investigated. The traps were contrasted only a single year due to some technical problems that emerged during the following years with most of the E-traps. During the Spring-Summer-Autumn 2021, sampling stations across Dalmatia were established, covering the coastal areas (i.e., reference) and the elevation corridors towards Central Europe. E-Traps were established at six sampling locations, covering the coast, and elevation corridors. In each sampling station we established two E-Traps (one lured with trimedlure, for male Medfly, and the 2nd with biolure, for female Medfly). In addition, and to contrast Medfly captures, conventional traps (Tephri with biolure and Jackson with trimedlure) were established. Traps were established in June 2021 and were kept in locations until December 2021. E-traps transmitted images on a daily basis, while conventional traps were serviced every two weeks.

Results: The occurrence of *C. capitata* was detected in 2020-2021 in two areas of Šibensko-kninska County and in seven areas of Splitsko-dalmatinska County. In Šibensko-kninska County, *C. capitata* was found in the localities of Knin and Badanj. In Knin, only one adult female was caught on an apple tree (*M. domestica*) at the end of June (2020.). In Badanj, we detected six adult female *C. capitata* on the same host (*M. domestica*) in early October (2020.). Surprisingly, this detection was not observed in the second year of monitoring in Šibensko-kninska County. In this area, e-traps were set at the Maovice and Badanj sites, but they did not yield any detections even in 2021.

Medfly catches in Ramljane and Tugare were low in 2020. In Tugare locality, two catches were recorded in a tephri trap curled with 3 C, one in late June and the other in early August. They were caught on the peach (*P. persica*), in close proximity to the fig tree (*F. carica*). In Ramljane, only one male was caught on apples (*M. domestica*) in early October (2020) in a tephri trap, attracted with 3 C. Notwithstanding the poorer condition of individual apple trees in Ramljane, these detections were not observed at the same sites in 2021.

During 2021, no captures were observed in elevations above 100 m. Most of the captures were found in the coastal areas, below 100 m above sea level. In these areas, however, we were able to obtain very good results with the E-trap and evidence of its usefulness as an early warning device. Most of the females captured in Podstrana were caught in the conventional Tephri lured with Biolure. The E-trap lured with Biolure was also able to capture some females. Regarding the capture and attraction of males, the E-trap was comparable to the Jackson trap, capturing similar numbers during the season. Of interest, however, is the fact that the E-trap lured with trimedlure was able to show early captures of male Medfly in August, at the same time, approximately, as conventional traps. The E-trap lured with trimedlure continued capturing comparable (to the Jackson) numbers of male Medfly during September, October and November. E-traps lured with Biolure (3C) were less effective than conventional Tephri traps. Although the results are from a single year and location, results suggest good early-warning capabilities of the *FF-IPM* E-traps.

The results in Dalmatia provide basis to the hypothesis that fruit flies may expand their range from warmer Mediterranean settings into cooler Central European areas via elevation corridors provided by ravines extending from mountain areas towards the Mediterranean Sea. The elevation gradient resulting from the ravines slow stepping into high-elevation valleys (e.g., at 500 m), may provide the ground for the establishment of these fruit flies via physiological and adaptive mechanism. This requires further exploration. The FF-IPM strategy to deploy traps in the elevation corridors’ provided good early-warning alerts of Medfly, in areas that it was not reported previously. E-traps can be part of this strategy, optimizing costs of servicing conventional traps.