



זיהוי מיני חורשים תיכוניים מעוצים על בסיס ספקטראלי-פנולוגי

Classifying Woody Mediterranean Species using Spectral and Phenological Observations

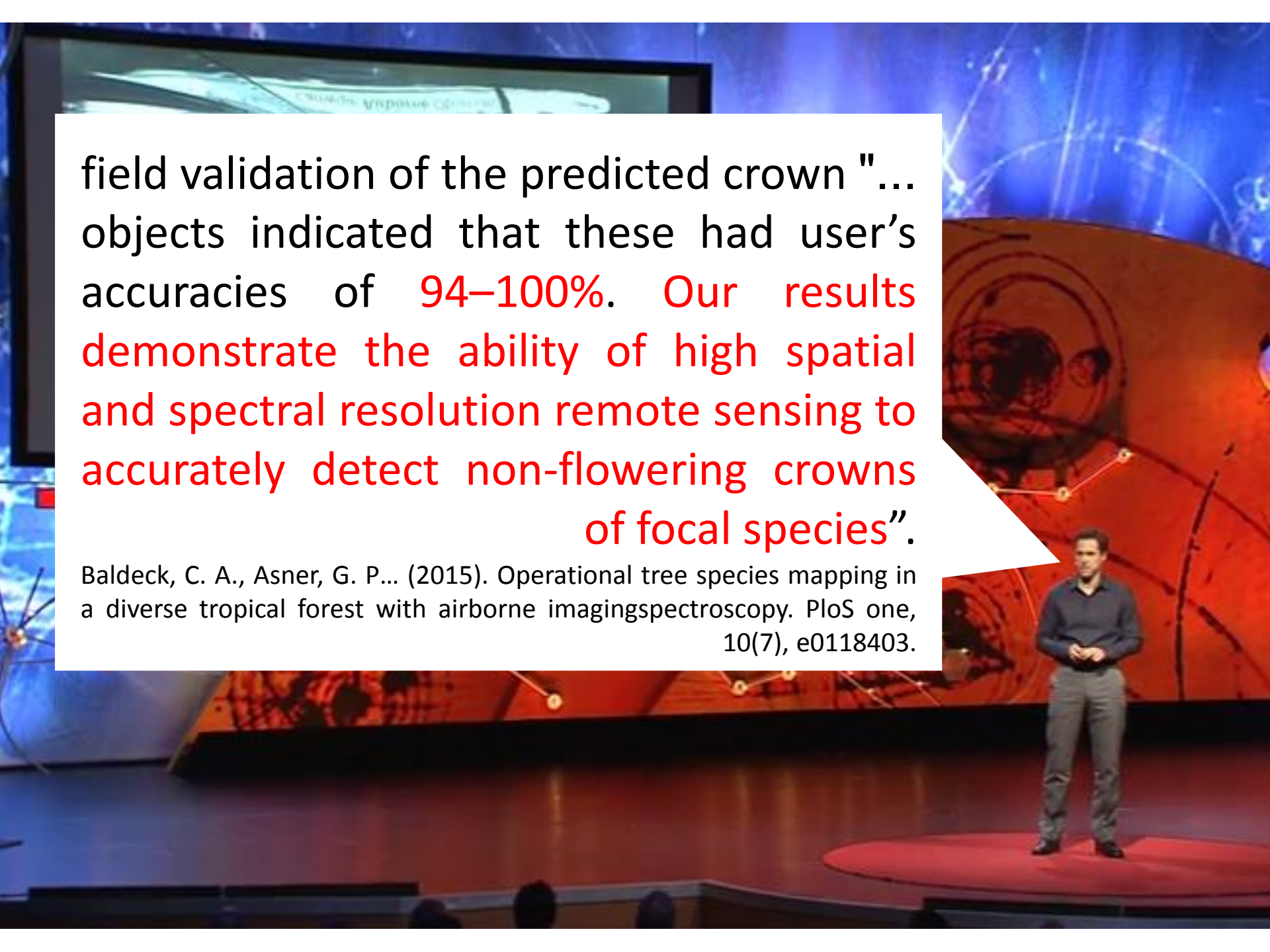
גלעד וייל

מנחים: פרופ' נעם לוין, פרופ' איתמר לנסקי





“a large airplane sitting on top of an airport runway”



field validation of the predicted crown "... objects indicated that these had user's accuracies of 94–100%. Our results demonstrate the ability of high spatial and spectral resolution remote sensing to accurately detect non-flowering crowns of focal species".

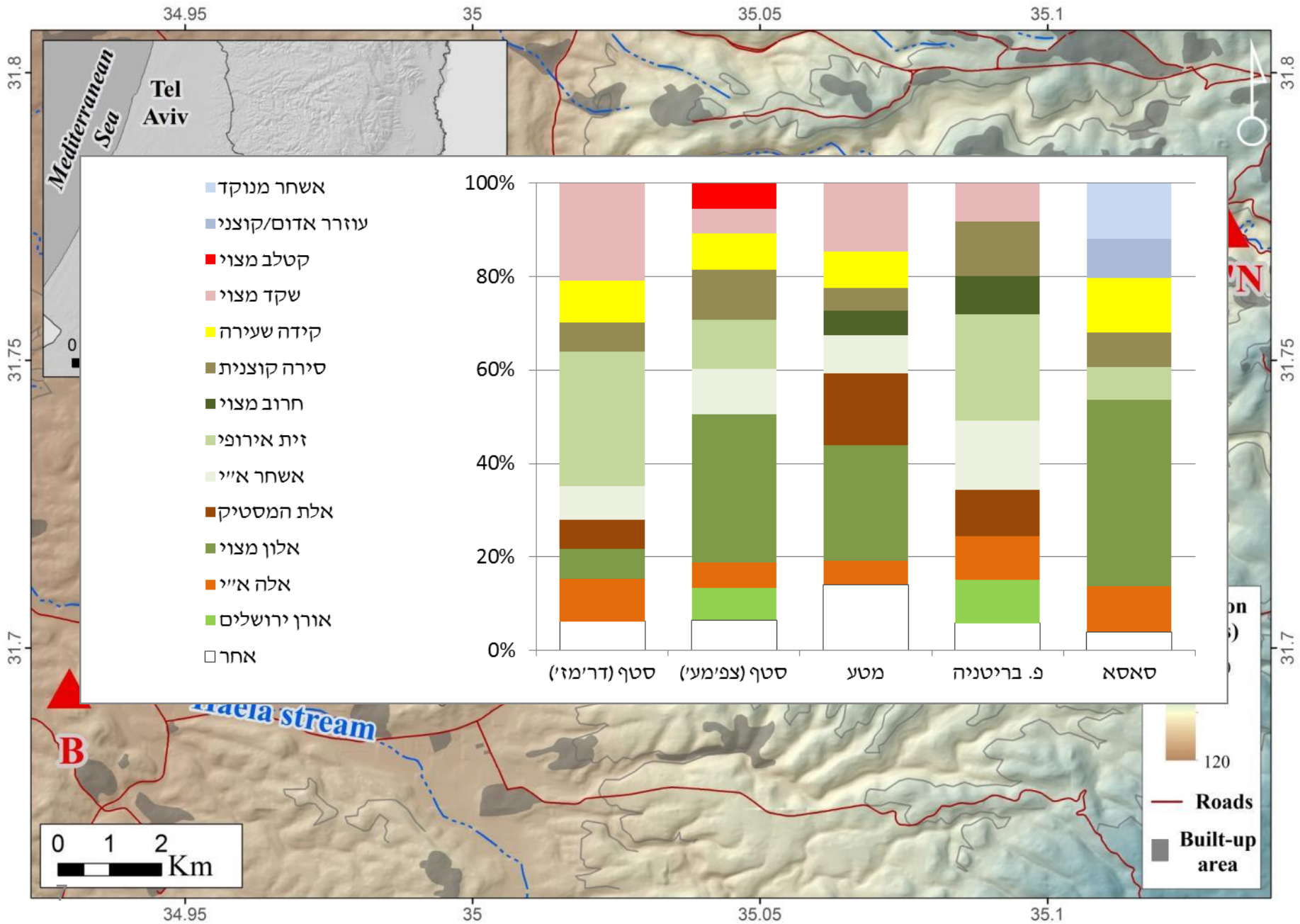
Baldeck, C. A., Asner, G. P... (2015). Operational tree species mapping in a diverse tropical forest with airborne imagingspectroscopy. PloS one, 10(7), e0118403.



ובחורש הים תיכוני?



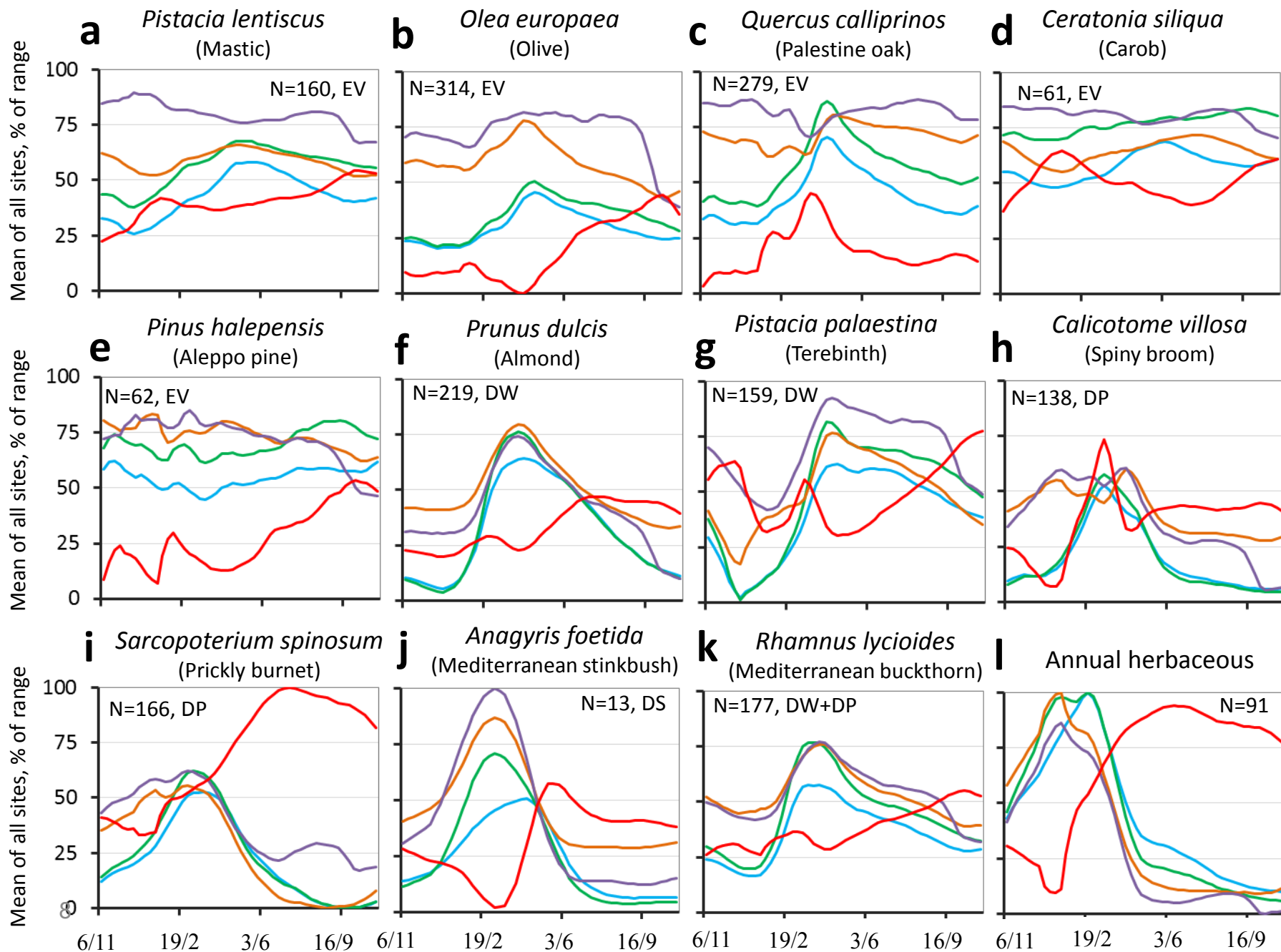


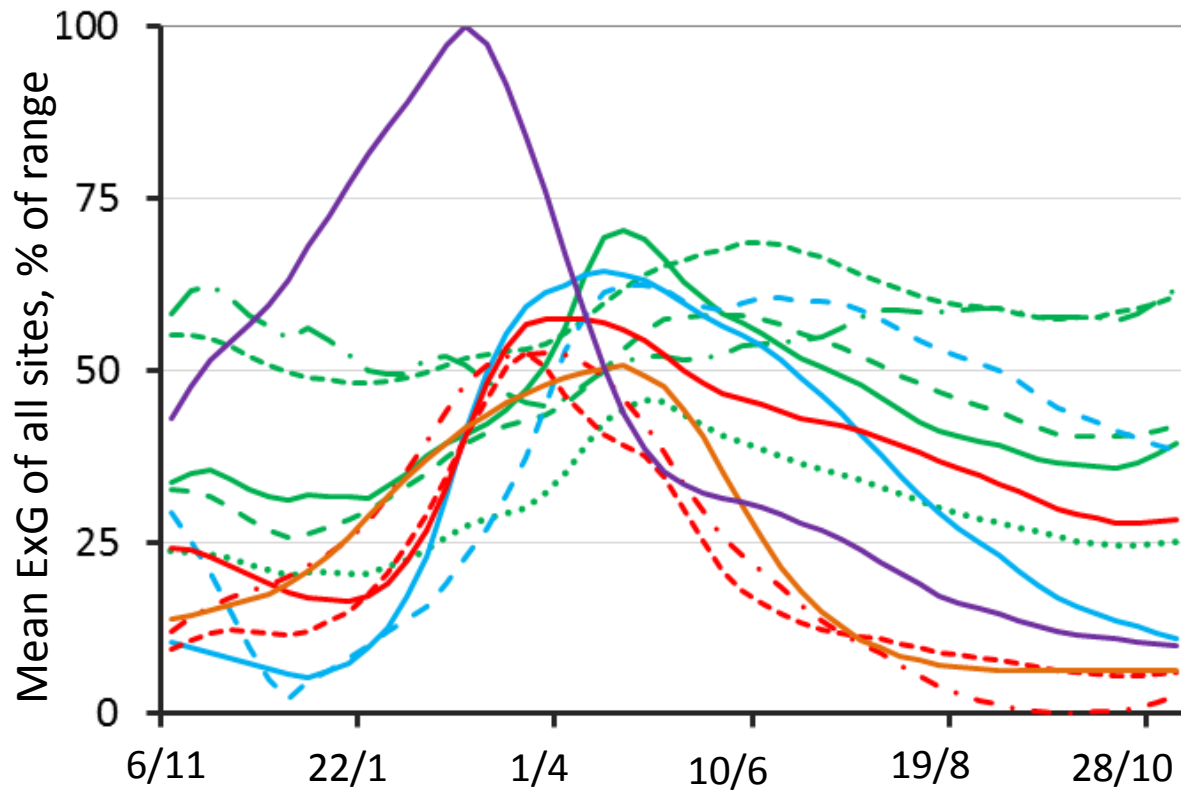


מחקר מתוכנן

התקדמות המחקר

הצעת המחקר



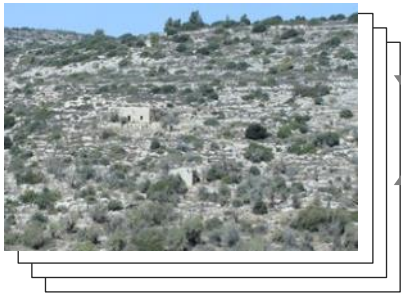


- EV**
 - *Quercus calliprinos*
 - - - *Ceratonia siliqua*
 - - - *Pistacia lentiscus*
 - *Olea europaea*
 - · - *Pinus halepensis*
 - DW**
 - *Prunus dulcis*
 - - - *Pistacia palaestina*
 - DP**
 - *Rhamnus lycioides**
 - - - *Calicotome villosa*
 - · - *Sarcopoterium spinosum*
 - DS**
 - *Anagyris foetida*
 - *Annual herbaceous*
- * DW+DP

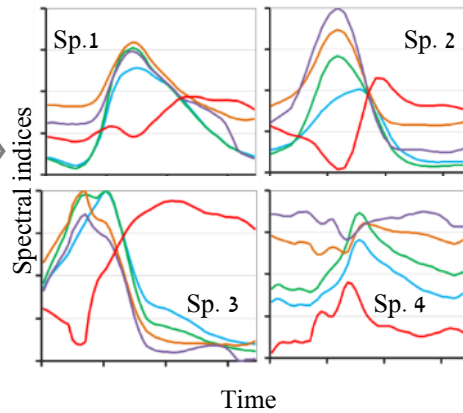


Preliminary detailed near-surface observations

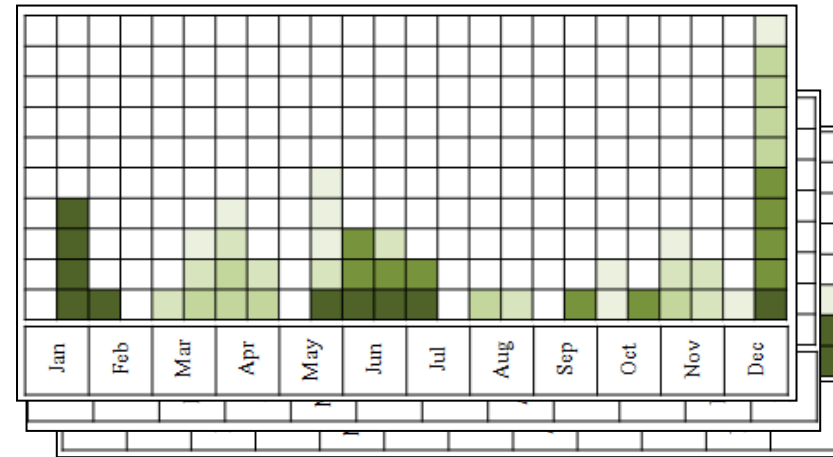
Annual near-surface observations of representative vegetation species in four sites



Time series of spectral indices and color conversions of the common local species

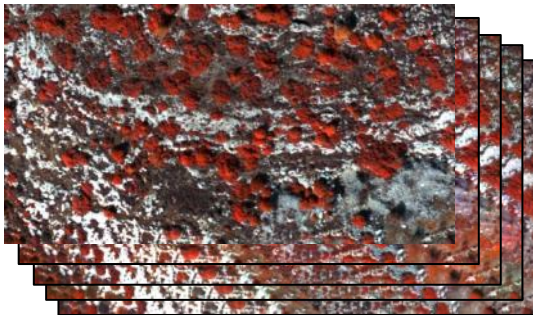


Machine learning for identifying optimal acquisition dates for classification in each site

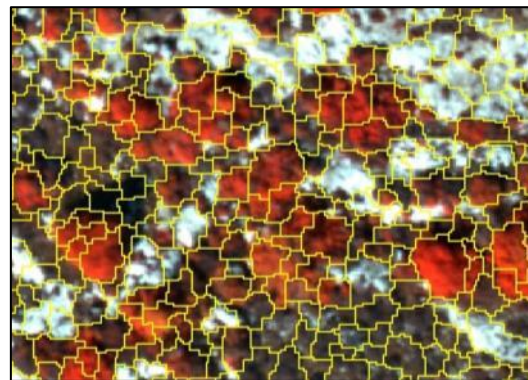


Acquisition of unmanned aerial vehicle imagery, using the a-priori selected optimal dates

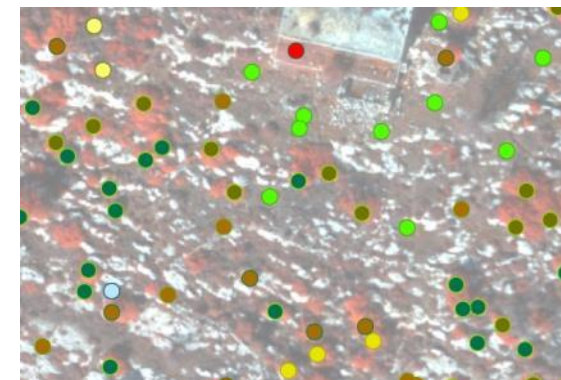
Observation of five narrow-band orthomosaics from a fixed-wing unmanned aerial vehicle



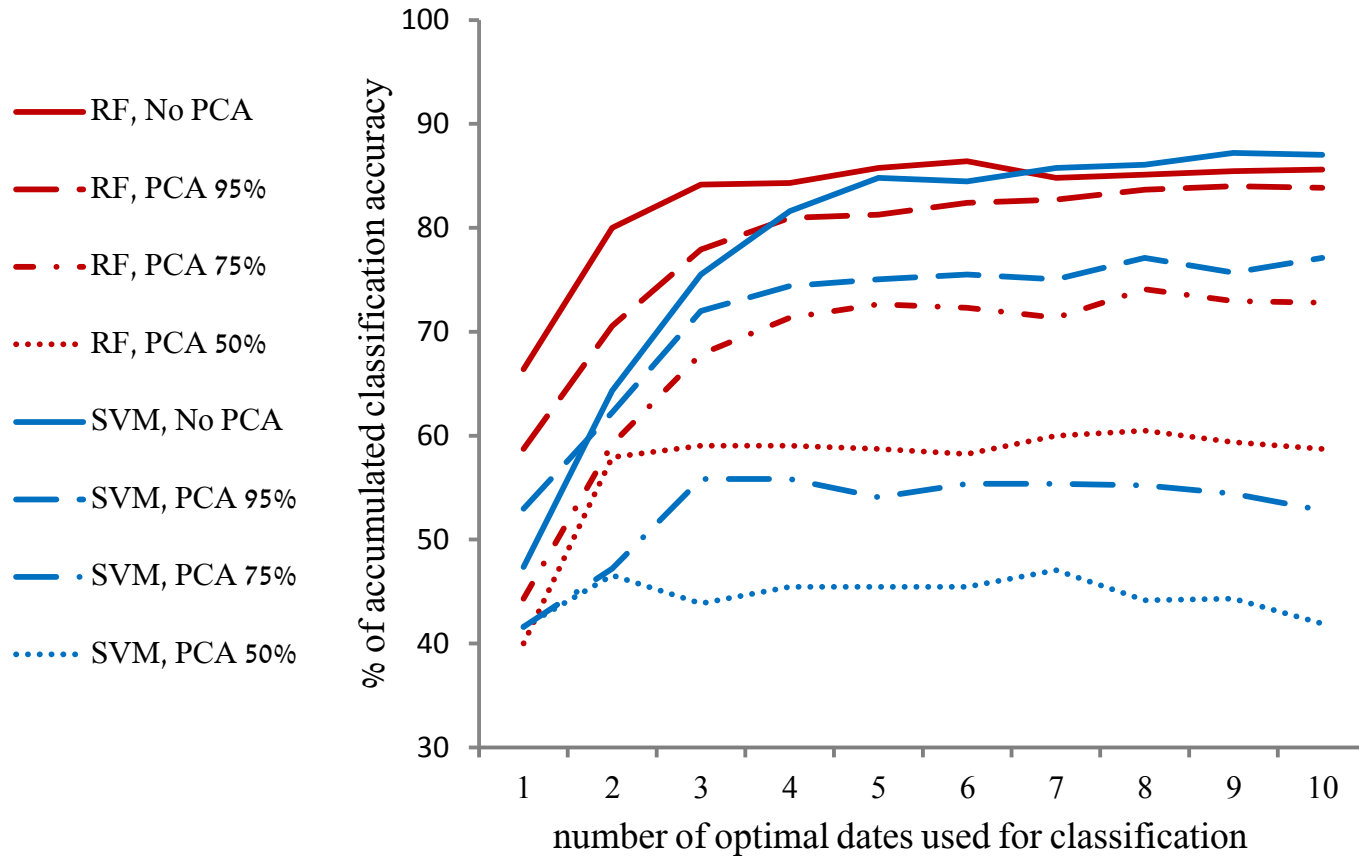
Multi-resolution segmentation

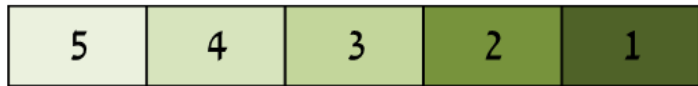
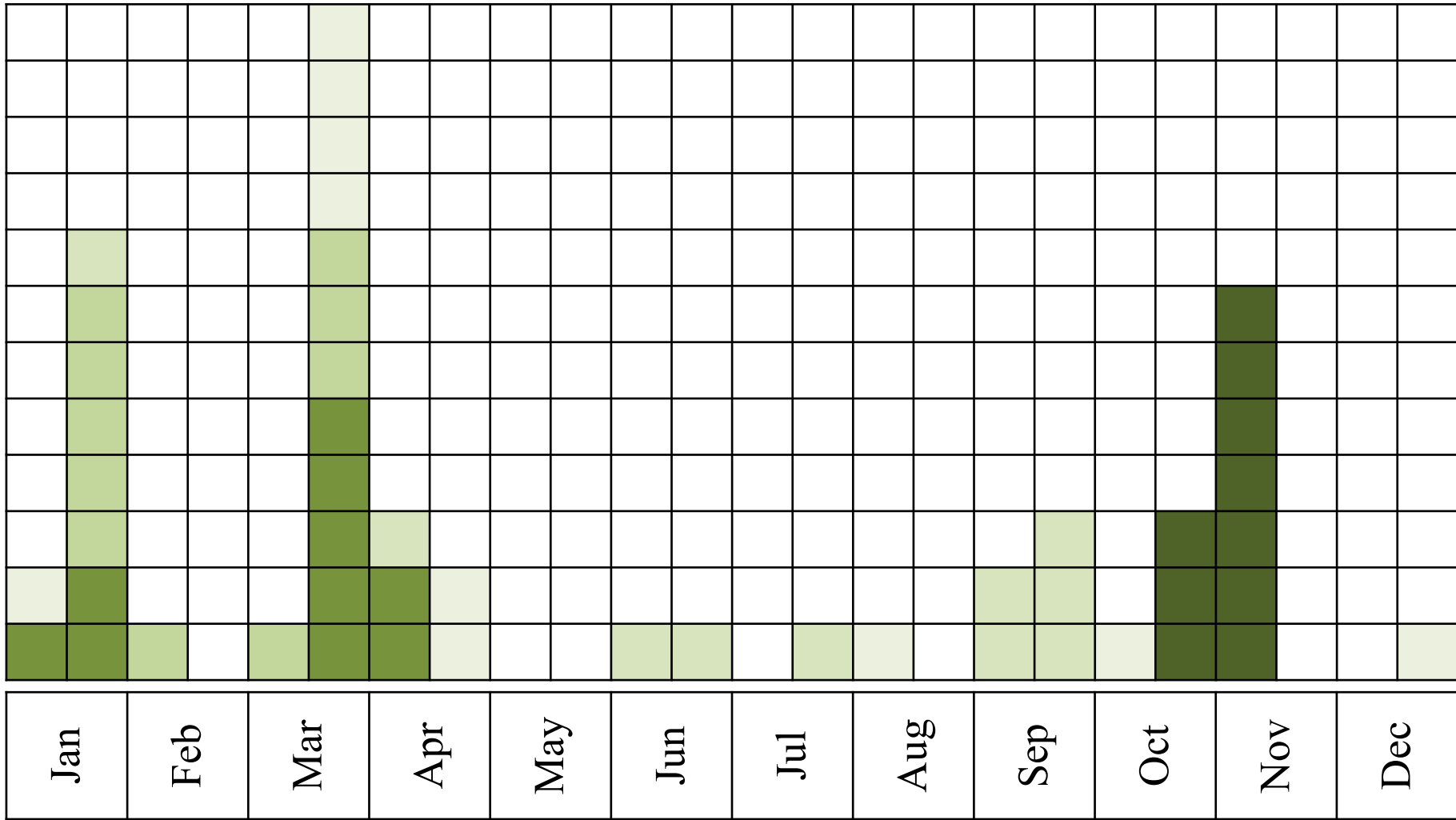


Species classification



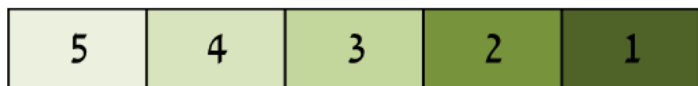
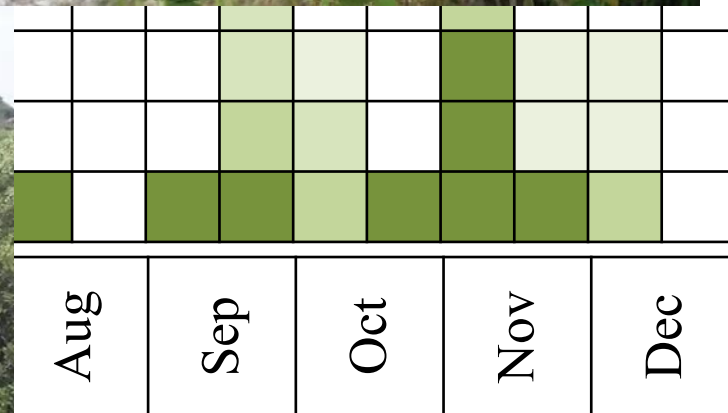
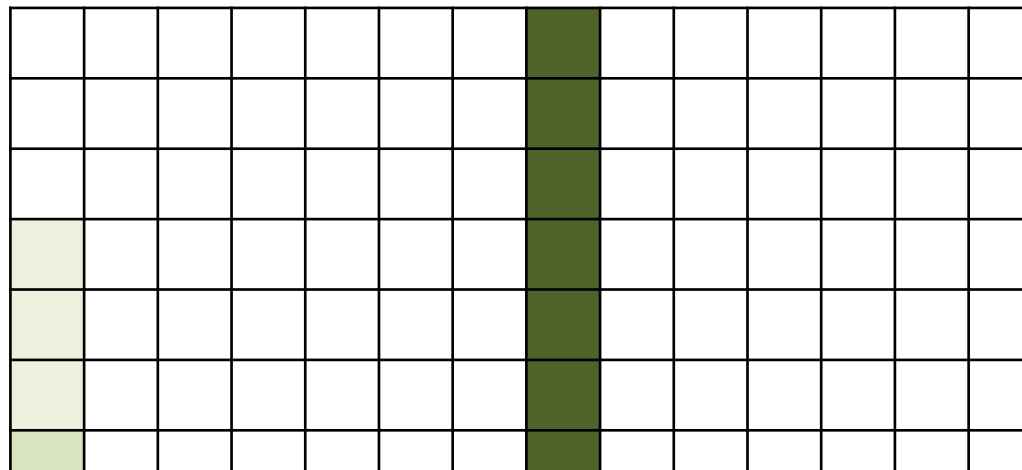
Total classification accuracy of the near-surface time series using random forest or support vector machine (Sataf)





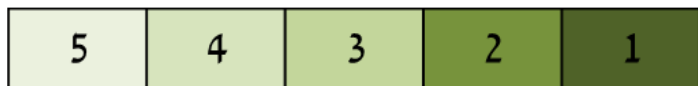
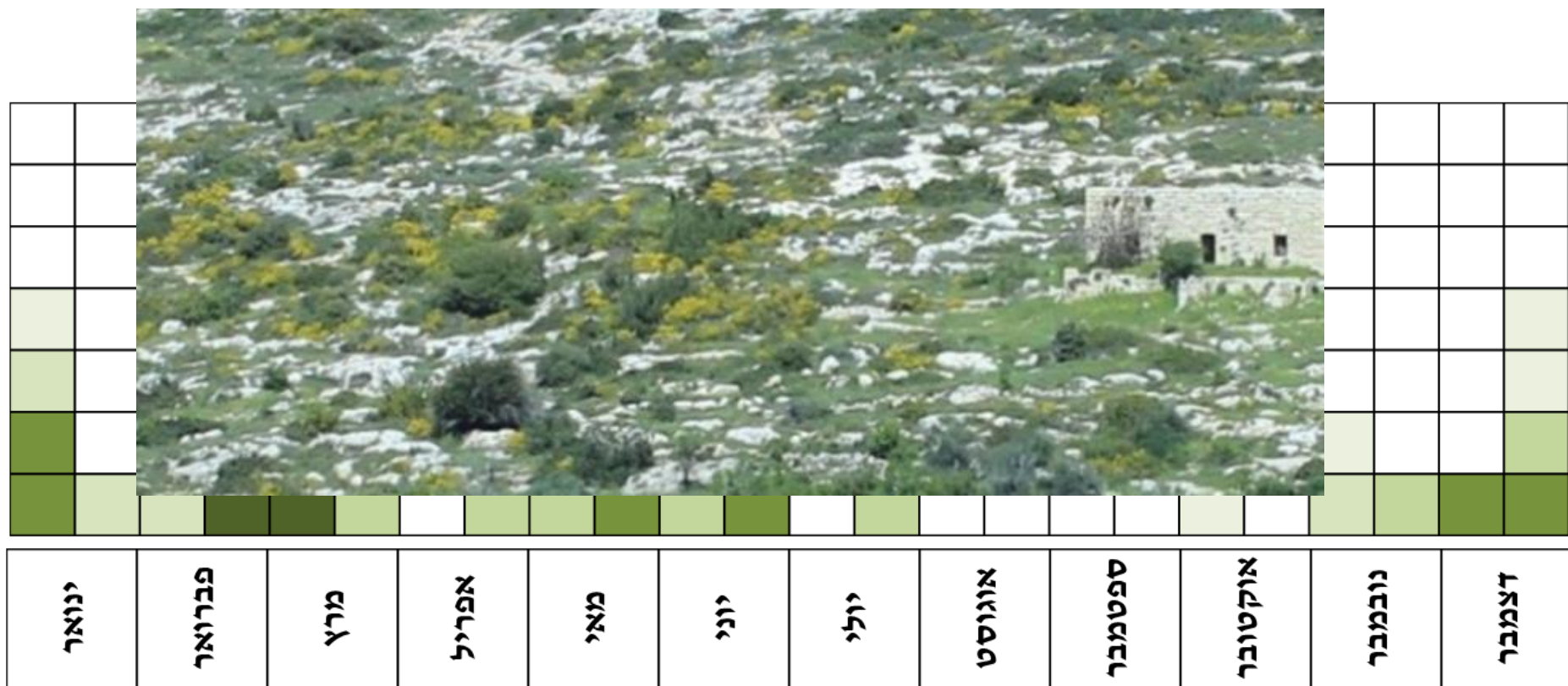
תאריכים אופטימאליים למיון, לפי סדר התרומה :

אורנים VS אלונים בסטף

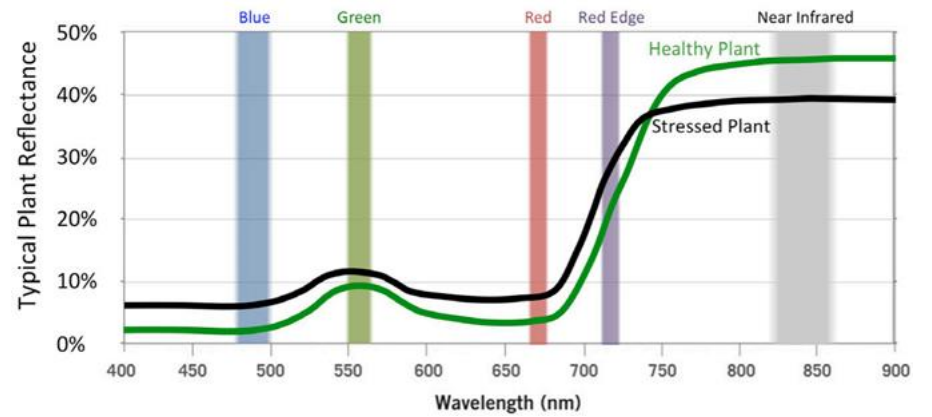


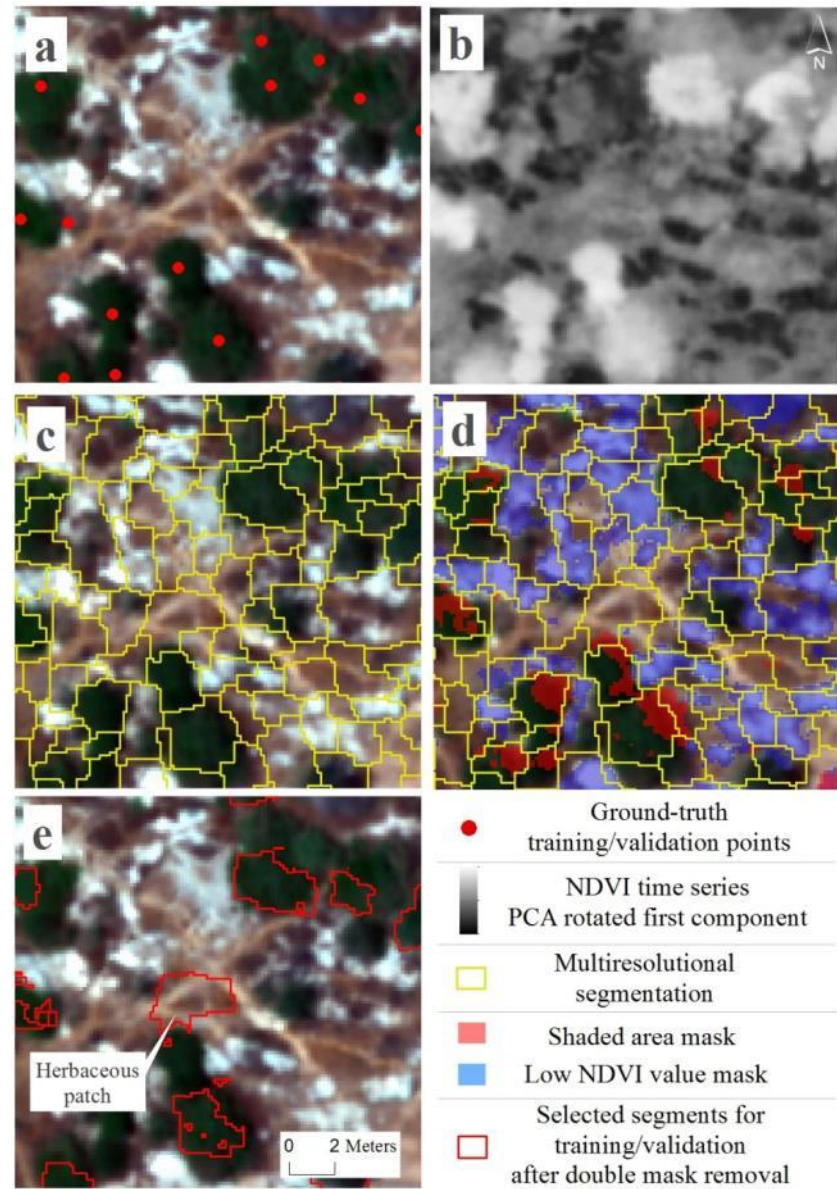
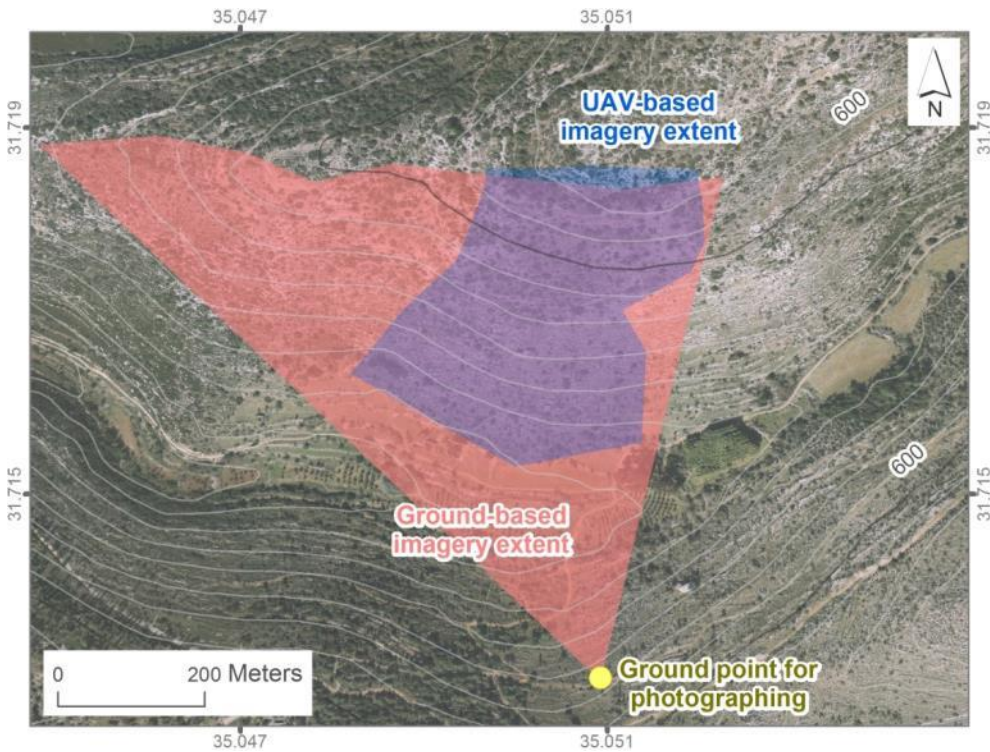
תאריכים אופטימאליים למיון, לפי סדר התרומה :

קידה VS שאר המינים במטע



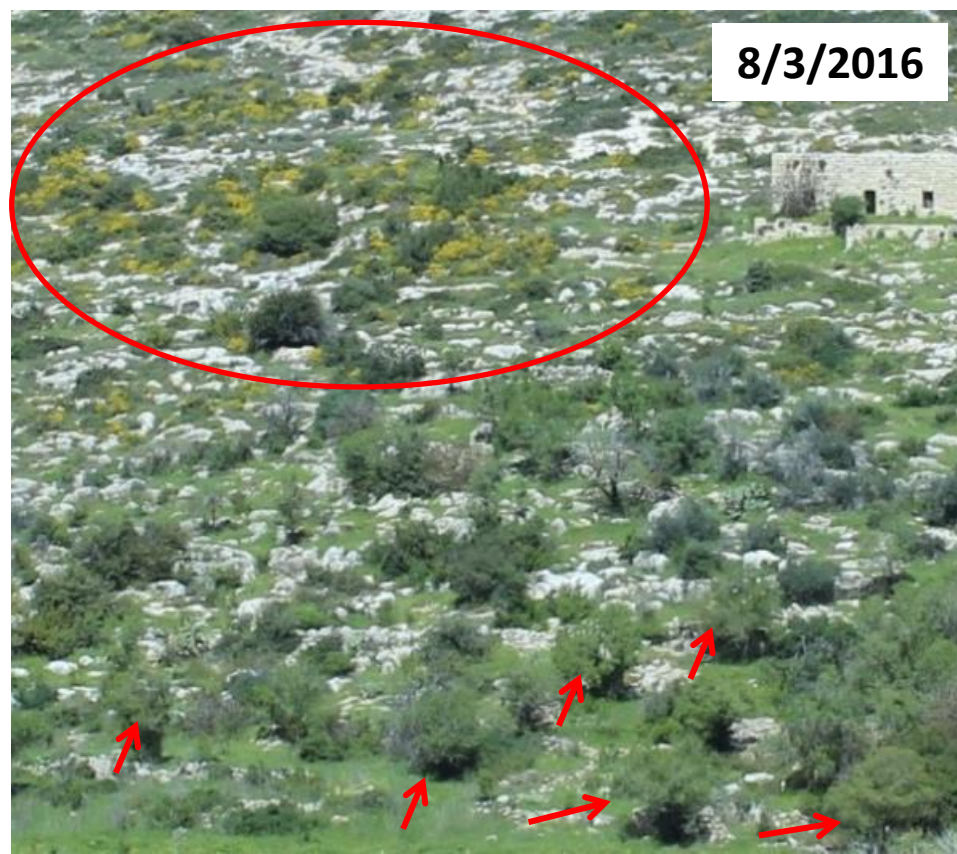
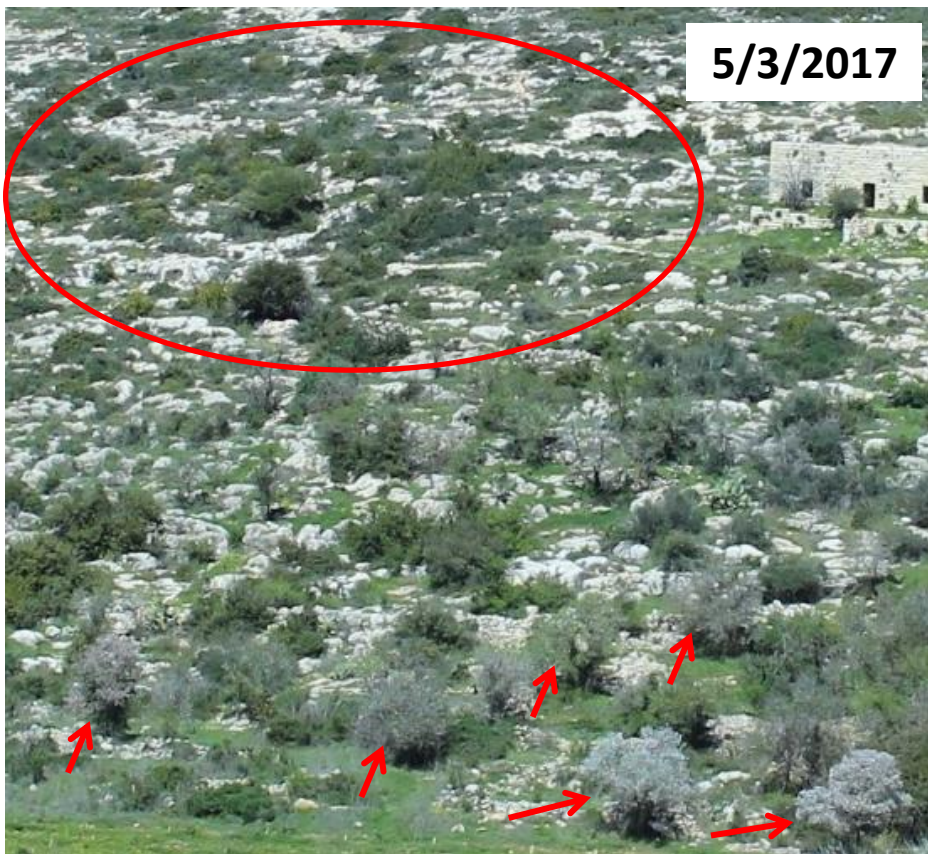
תאריכים אופטימאליים למיון, לפי סדר התרומה:



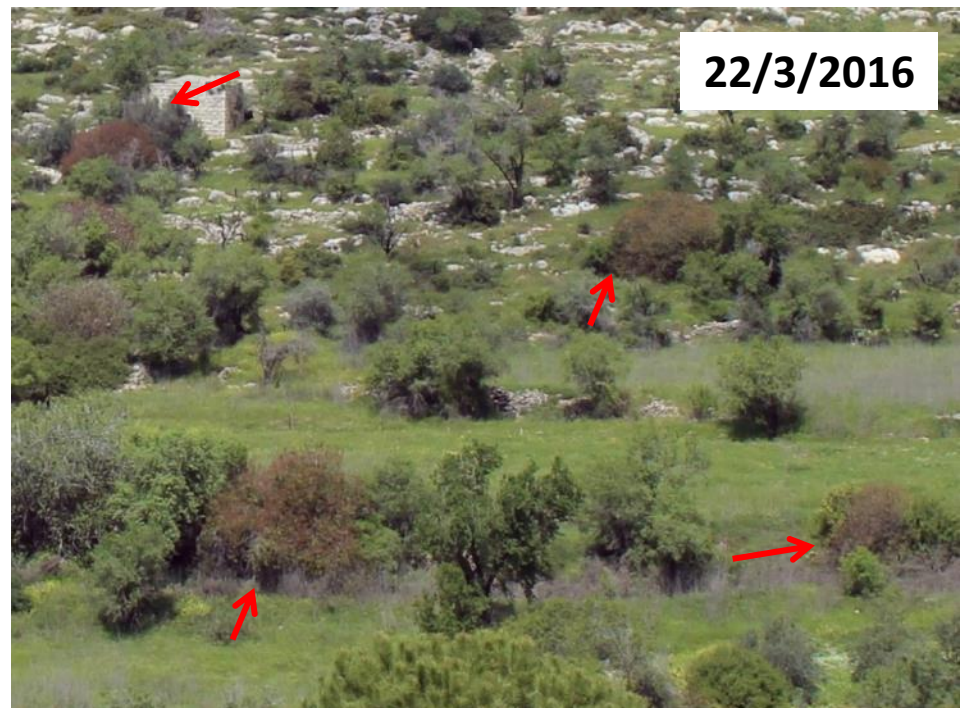
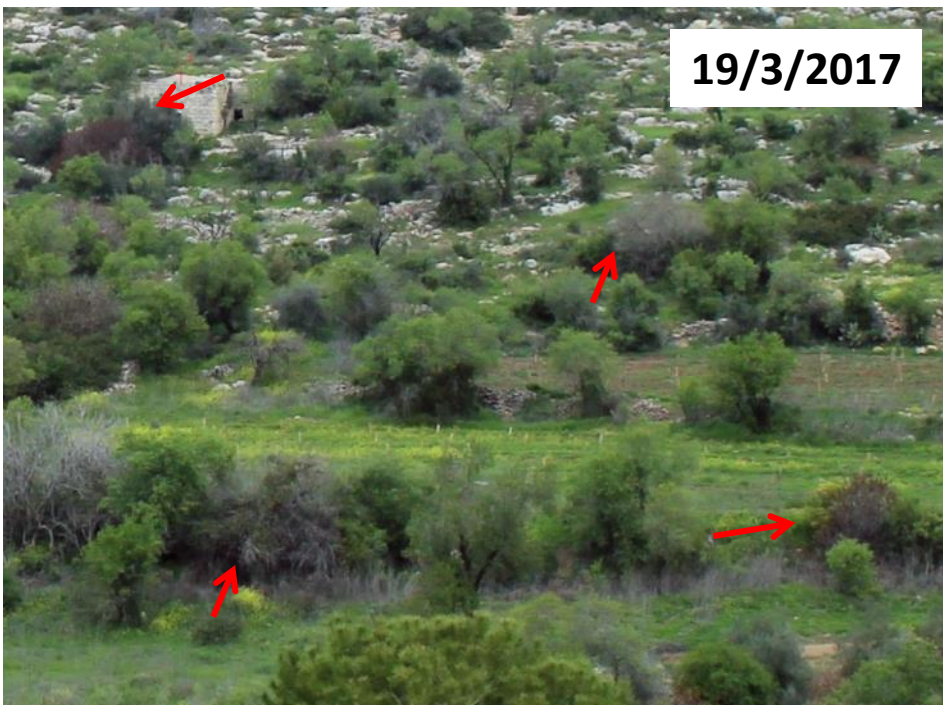


The ten cross-validation accuracy assessments of the UAV time series classification resulted in an average overall accuracy of 85% and an average Kappa coefficient of 0.82 (Table 5). Average producer's accuracy ranged between 94.2% (herbaceous patches) and 76.9% (*Olea europaea*). Average user's accuracy ranged between 97.1% (herbaceous patches) and 64.6% (*Olea europaea*). The average producer's and user's accuracy values of the different species were not necessarily assigned to phenological groups (e.g., evergreen vs. deciduous). However, the unique green phenophase of herbaceous patches during the limited period of the wet season [109] led to a high classification accuracy compared to the woody species.

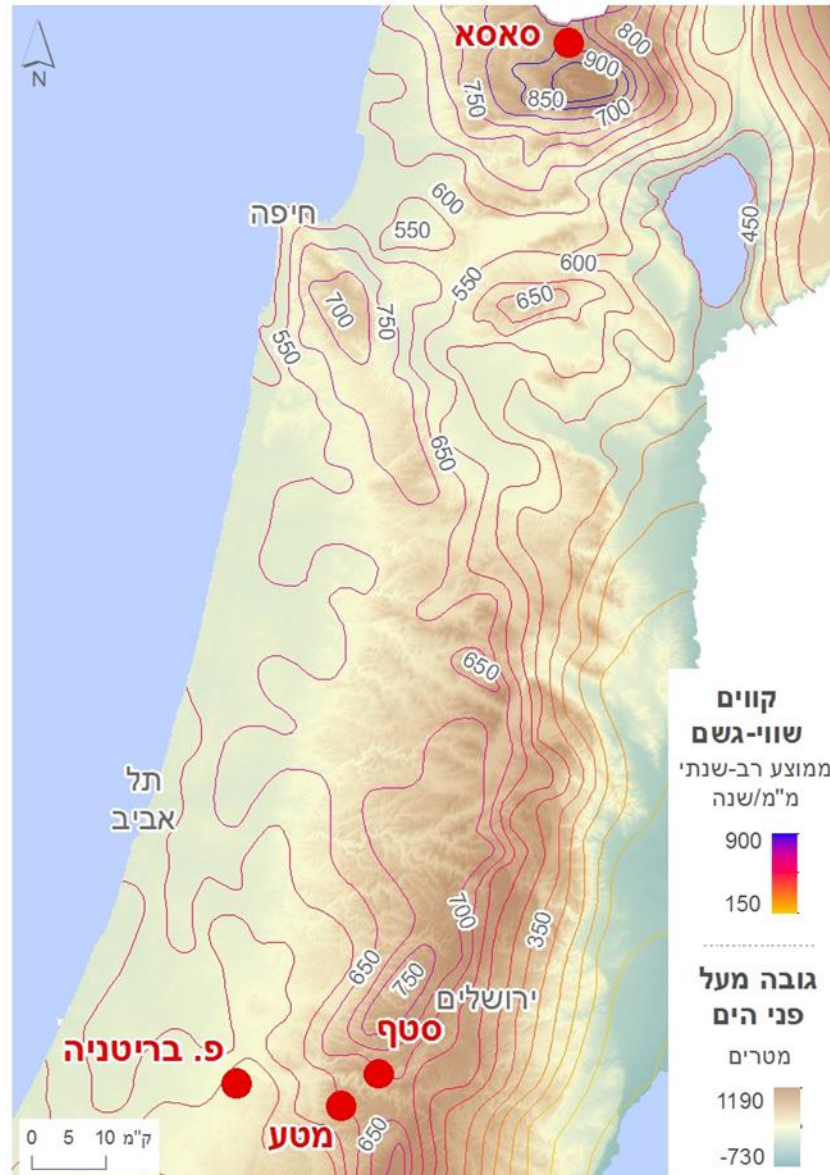
שונות בין-שנתית

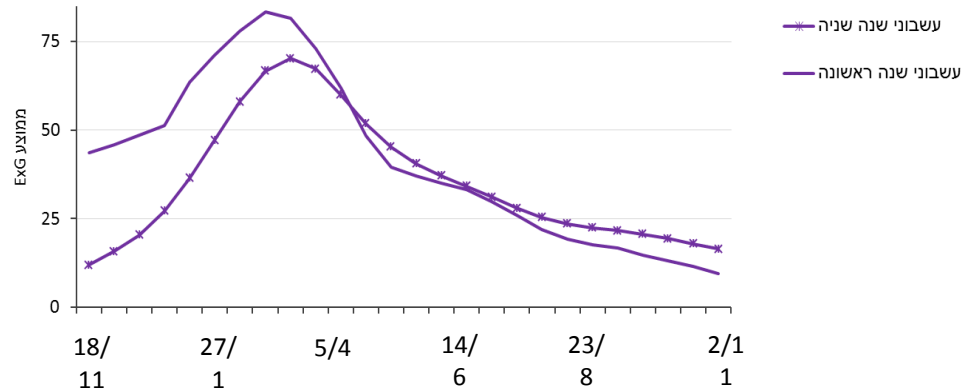
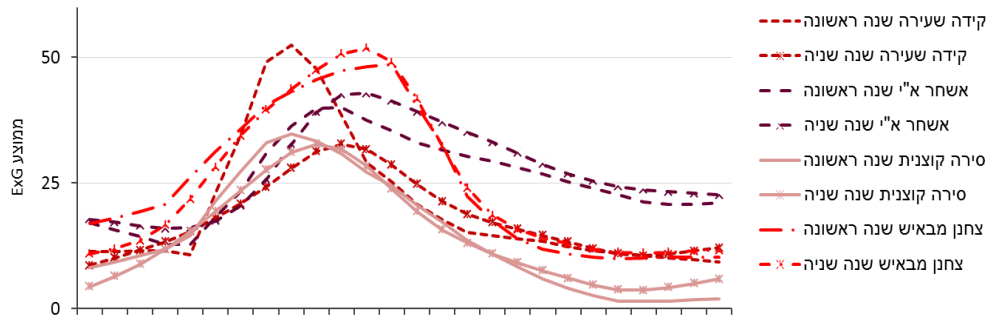
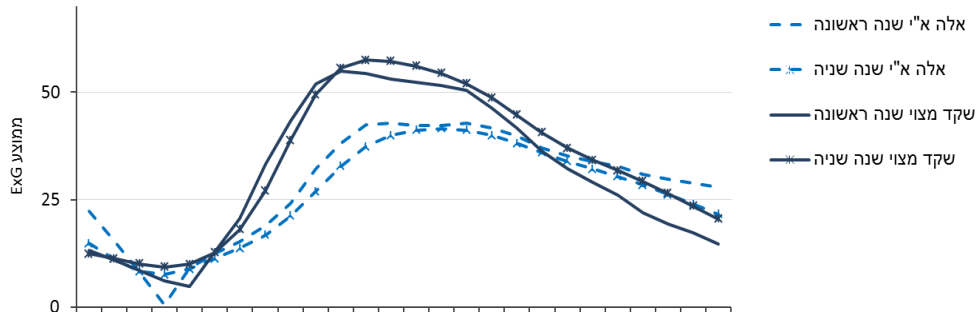
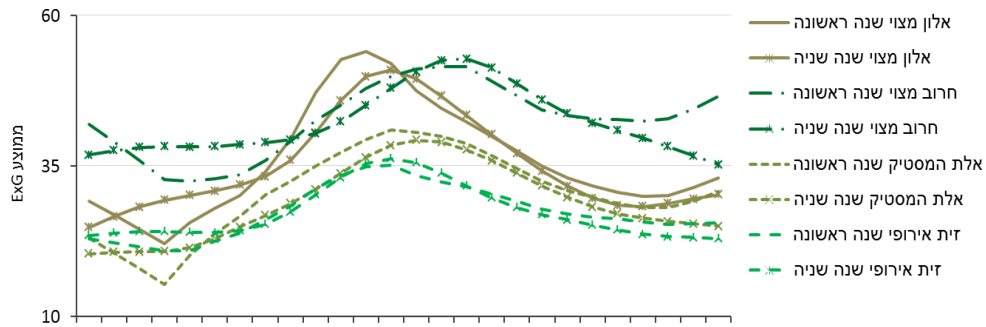


שונות בין-שנתית



שונות מרחבית





תודות!

- מנחי המחקר: פרופ' נעם לוין ופרופ' איתמר לנסקי
- קרן ע"ש פרופ' דוד עמירן
- קרן מחקר למדעי הסביבה ע"ש משפחת רינג
- רשות הטבע והגנים
- יחזקאל רשף, בית הספר להנדסה ומדעי המחשב, האונ' העברית
- בית הספר המתקדם ללימודי סביבה, האונ' העברית

