
Figures and figure supplements

Unprecedented yet gradual nature of first millennium CE intercontinental crop plant dispersal revealed in ancient Negev desert refuse

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Figure 1. Study sites and middens. The study sites—Shivta, Elusa, and Nessana—roughly span the Negev Highlands region of the Negev desert. The excavated middens are marked on the aerial photos above and are lettered as named in the 2015–2017 excavations (see also **Table 4**). Adjacent middens include K1-K2 at Shivta and A1-A4 at Elusa; the latter are marked above only as A.

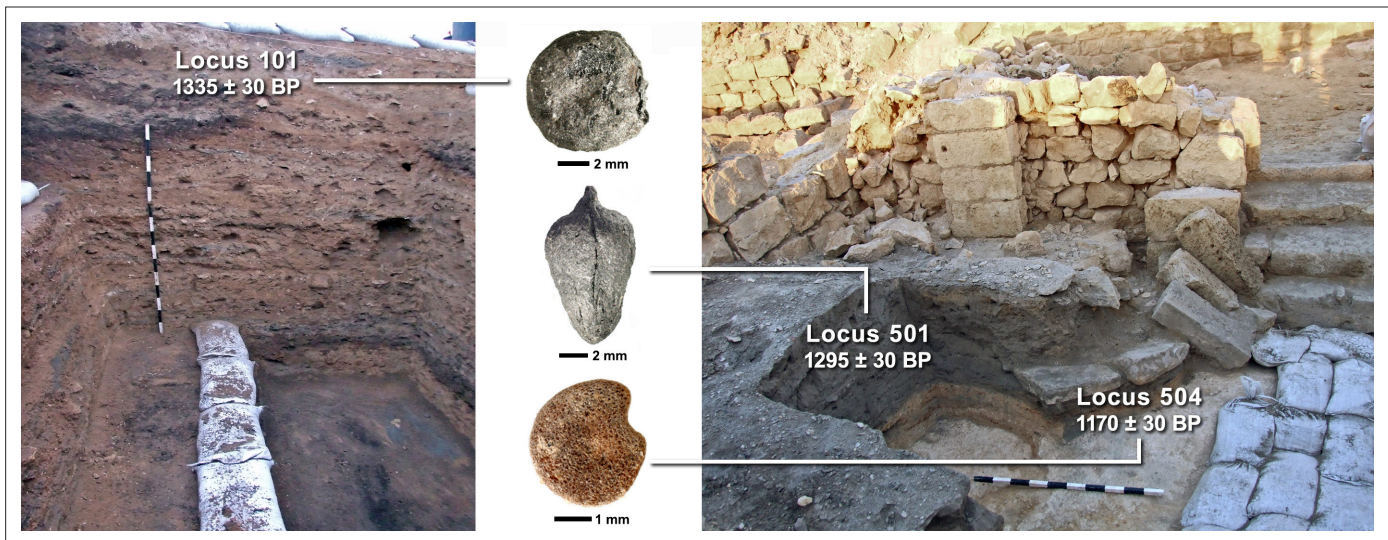


Figure 2. First finds from the Negev Highlands middens. Section photos of Nessana midden A (left) and Shivta midden E (right) are shown with select loci (photographed by Yotam Tepper) and their uncalibrated radiocarbon dates, from which remains of white lupine (center top), jujube (center middle), and aubergine (center bottom) were found. These plant remains represent some of the earliest of their species found in the Southern Levant (photographed by Daniel Fuks).

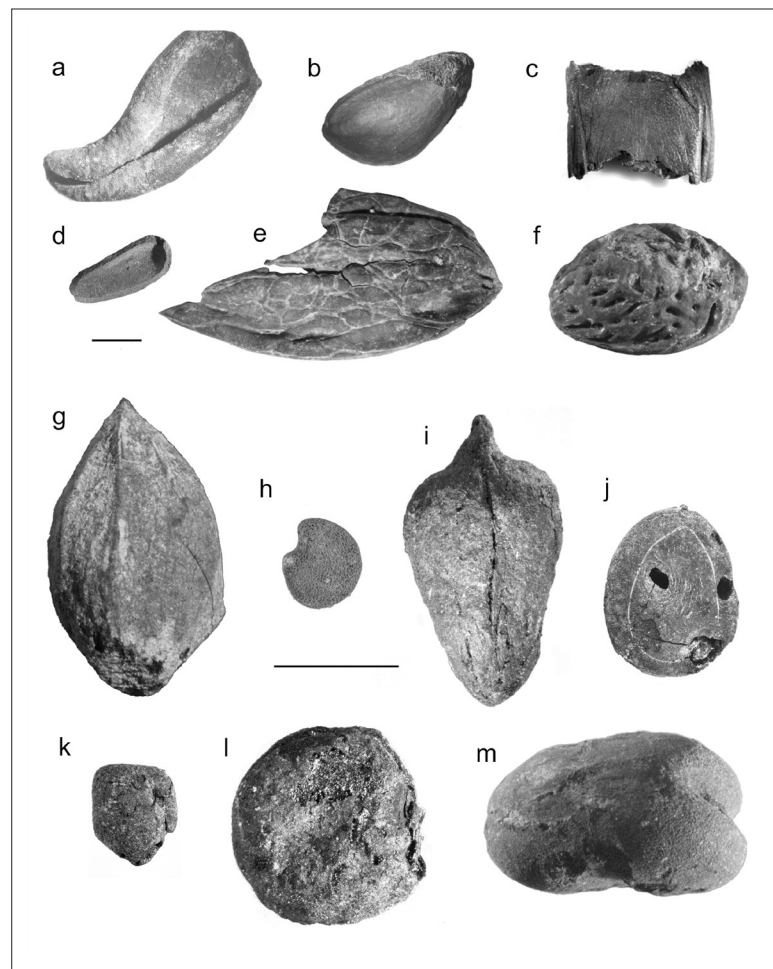


Figure 3. Select plant remains from the Negev Highland middens (a) charred almond (*Prunus amygdalus* Batsch) exocarp; (b) charred pistachio (*Pistacia vera* L.) drupe; (c) charred carob (*Ceratonia siliqua* L.) pod fragment; (d) uncharred stone pine (*Pinus pinea* L.) outer seed coat fragment; (e) uncharred walnut (*Juglans regia* L.) endocarp fragment (f) charred peach (*Prunus persica* [L.] Batsch) endocarp; (g) charred cherry/plum (*Prunus* subgen. *Cerasus/Prunus*) endocarp; (h) uncharred aubergine (*Solanum melongena* L.) seed; (i) charred jujube (*Ziziphus jujuba/mauritiana*) endocarp; (j) charred Nile acacia (*Vachellia nilotica* [L.] P.J.H.Hurter & Mabb.) seed; (k) charred fenugreek (*Trigonella foenum-graecum/berlythea*) seed; (l) charred white lupine (*Lupinus albus* L.) seed; (m) charred broad bean (*Vicia faba* L.). Scale bars = 5 mm for both a-f and g-m; all photos in grayscale (photographed by: Daniel Fuks and Yoel Melamed). Additional photos of select plant remains appear in **Figure 3—figure supplement 1**.

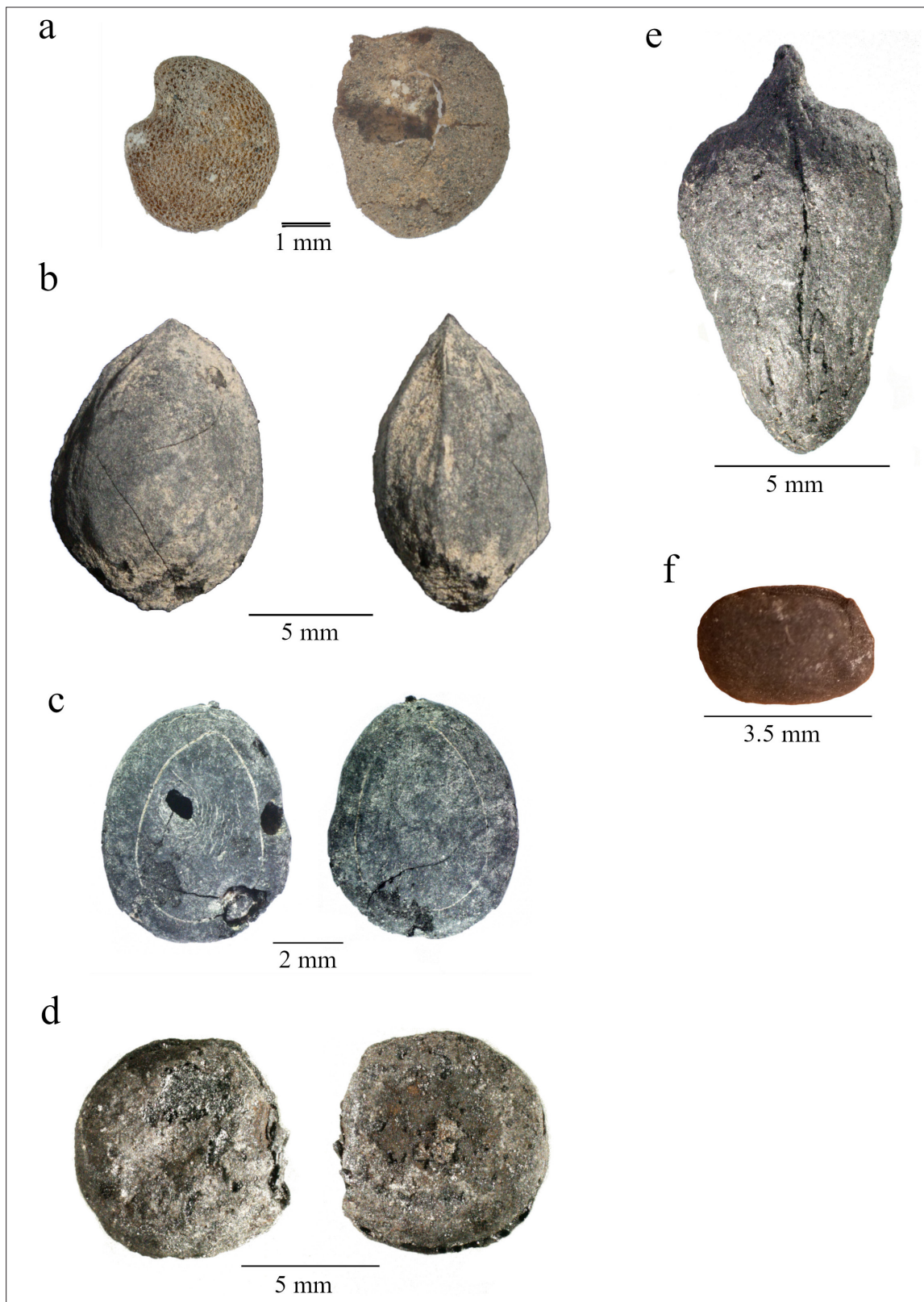


Figure 3—figure supplement 1. Supplementary photos of select plant remains from the Negev Highland middens. (a) Left: *Solanum melongena* L. seed from Shivta (E 504-5029). Right: cf. *Solanum melongena* from Nessana (A 102-1072-1). (b) *Prunus* subgen. *Cerasus*/*Prunus* endocarp from Shivta (K1 165-1652). (c) *Vachellia nilotica* (L.) Wild. ex Delile seed faces A and B from Elusa (A1/10a). (d) *Lupinus albus* L. seed faces A and B from Nessana (A101-1040/2). (e) *Ziziphus jujuba/mauritiana* endocarp from Shivta (E501-5108). (f) *Lathyrus clymenum* L. seed from Shivta (K2-158-1618).

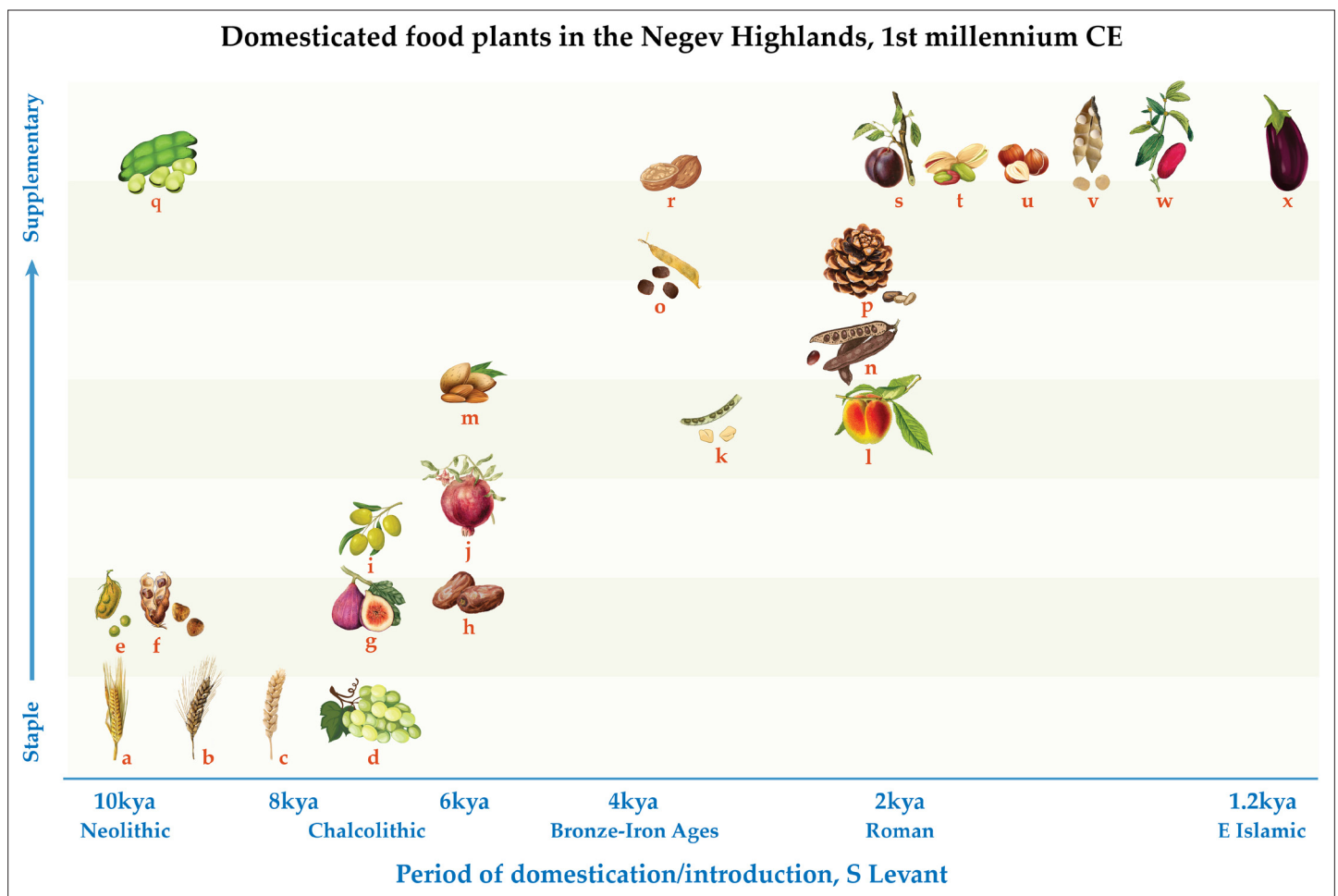


Figure 4. Schematic representation of domesticated food plants according to their frequency in the first millennium CE Negev Highland sites and period of initial domestication in, or introduction to, the Southern Levant: (a) barley, (b) free-threshing tetraploid wheat, (c) free-threshing hexaploid wheat, (d) grape, (e) lentil, (f) bitter vetch, (g) fig, (h) date, (i) olive, (j) pomegranate, (k) fenugreek, (l) peach, (m) almond, (n) carob, (o) Spanish vetchling, (p) stone pine, (q) broad bean, (r) walnut, (s) plum/cherry, (t) pistachio, (u) hazel, (v) white lupine, (w) jujube, (x) aubergine.

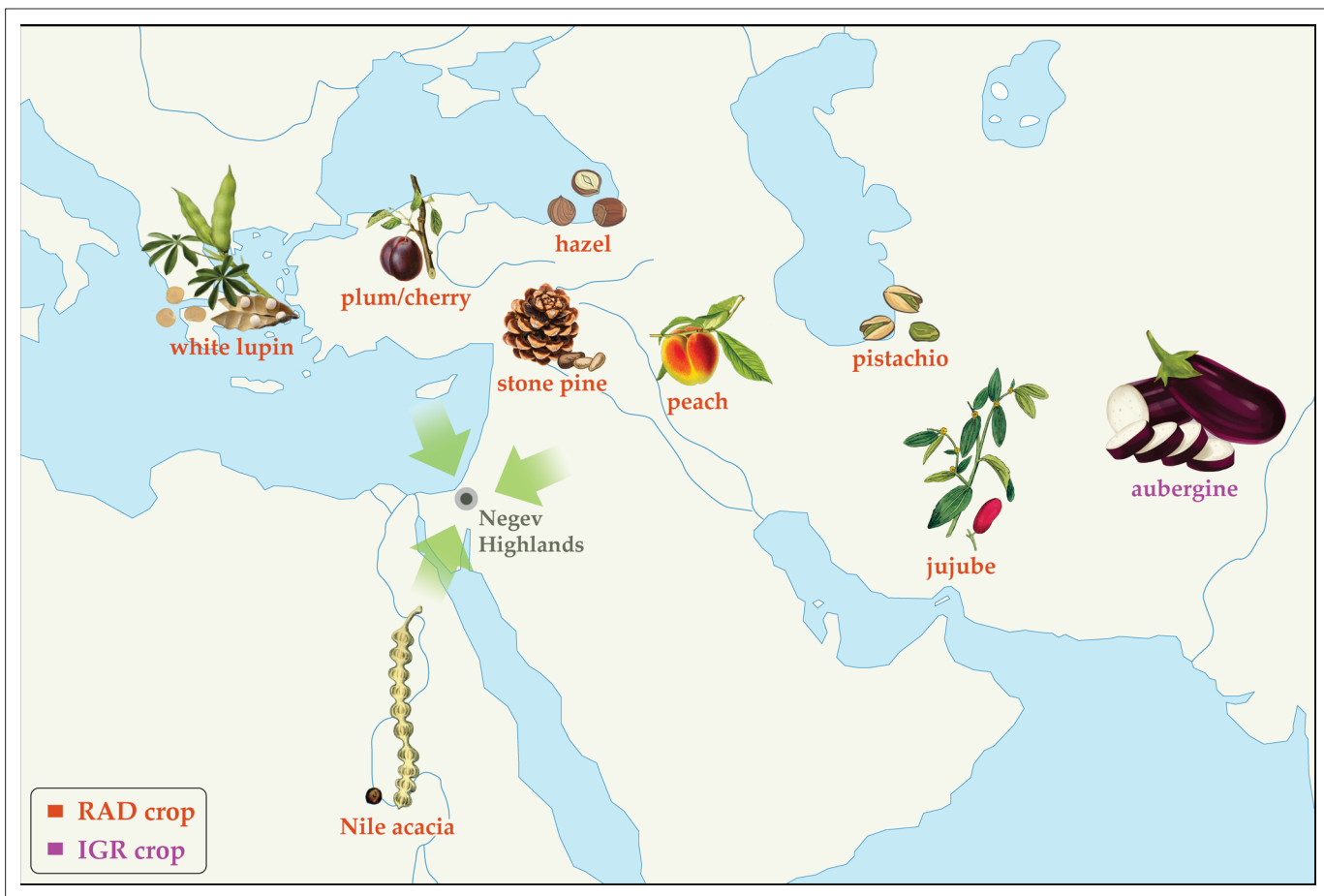


Figure 5. Schematic representation of directions of first millennium CE crop diffusion into the Southern Levant based on plants attested to in the Negev Highland middens. Roman Agricultural Diffusion (RAD) crops are labeled red; Islamic Green Revolution (IGR) crops are labeled purple. Placements on map convey general directions of diffusion, not necessarily precise origins.