Restoring Dehydrated Insects for Macro Photography – Summary Table

Excerpted from the article "Restoring Dehydrated Insects for Macro Photography" by Allan Walls Photography
https://www.allanwallsphotography.com/blog/drybugs

This is a summary of the suggestions presented in the YouTube video, "Restoring Dehydrated Insects for Macro Photography" by Allan Walls Photography. Please refer to the video for context and details related to each recommendation. Some of the chemicals that are used in this process are hazardous – please refer to manufacturers' safety documentation before using these substances in your own restoration attempts. These recommendations are not, by any means, the only potentially efficacious techniques; they represent the author's preferences and are based on his personal experience.

STEP	CORE CONSIDERATIONS	EQUIPMENT	CHEMICALS	NOTES
#1 Rehydration	▪ Wrap specimens individually ▪ Keep cotton moist ▪ Add phenol every time chamber is opened ▪ Check after 24hrs and then twice daily ▪ Remove as soon as rehydrated ▪ Chamber must be kept airtight	▪ Sistema Go Snack Container ▪ Cotton Pads ▪ Cheesecloth ▪ Fine-tip forceps	▪ Water ▪ Phenol (4%)	▪ To restore tissue turgor & improve joint laxity for positioning ▪ Phenol for inhibiting mold growth. Mix one-part phenol to 10 parts water for hydrating fluid ▪ Keep chamber in warm, dark location throughout
#2 Inspection	▪ Examine specimen under good light ▪ Use dissecting microscope if available ▪ Test joints for laxity	▪ Fine-tip forceps ▪ Fine-tip paintbrush ▪ Dissecting microscope or magnifying glass	▪ none	▪ Initial inspection to assess hydration ▪ Findings guide approach to Step #3
#3 Relaxation	▪ Skip this step if appendages move freely ▪ For slight stiffness use ammonium hydroxide ▪ For severe stiffness use pepsin solution ▪ Repeat step(s) as needed	▪ Fine-tip forceps ▪ Soft brush ▪ Eye-dropper ▪ Rehydration chamber (Sistema) ▪ Safety glasses	▪ Ammonium hydroxide + sodium lauryl sulfoacetate (SLSA) ▪ Powdered pepsin + hydrochloric acid (HCl)	▪ Dilute ammonium hydroxide in water for 3-5% solution ▪ Add 5gm SLSA to 100ml ammonia solution ▪ Mix 1-2gm powdered pepsin with 3ml dilute HCl (10% in water) immediately prior to application ▪ Rinse specimen of any ammonia before using pepsin/HCl
#4 Inspection	▪ When appendages fully relaxed ▪ Use adequate magnification to view eyes ▪ Look for grease or wax buildup and particulate matter	▪ Fine-tip forceps ▪ Fine-tip paintbrush ▪ Extra-fine hobby brush ▪ Dissecting microscope or magnifying glass	▪ none	▪ Second inspection to evaluate amount and type of contamination ▪ Use findings of this inspection to guide Step #5

#5 Decontamination	▪ Remove particulate dirt with warm soapy water and/or ultrasonic cleaning ▪ Remove oil/grease with tetrachloroethylene (brake cleaner fluid) ▪ Remove wax buildup with Cellosolve ▪ Recondition compound eyes with Decon 90	▪ Fine-tip brush ▪ Fine-tip hobby brush ▪ Microscope ▪ Lab rinse bottle ▪ Safety glasses ▪ Respirator ▪ Ultrasonic cleaner	▪ Tetrachloroethylene ▪ Cellosolve ▪ Decon 90	▪ Use treatments only as needed ▪ Wear protective equipment ▪ Use lab rinse bottle to flush chemical residue after treatment ▪ Rinse with distilled water ▪ Wear gloves when handling chemicals ▪ Use ultrasonic cleaning with care – very short cycles
#6 Posing & drying	▪ Use pins and foam core board to position specimen as desired ▪ Do not place pins into specimen ▪ Work quickly ▪ Dry thoroughly once positioned ▪ Protect during drying	▪ Foam core board sections ▪ Insect pins ▪ Fine sieve	▪ none	▪ To reposition specimen, brief rehydration should suffice ▪ Allow additional drying time after repositioning
#7 Imaging	▪ Avoid appendage drift during imaging by ensuring specimen is completely dry			▪ Store in dry condition if additional images may be required
#8 Preservation	▪ Either method will work for most specimens ▪ Larval forms require wet preservation ▪ Lepidoptera require dry preservation	▪ Watertight jars for wet specimens ▪ Airtight boxes for dry specimens	▪ Denatured Ethyl Alcohol ▪ Paradichlorobenzene ▪ Silica gel	▪ Remove all pins from wet preserved specimens ▪ May leave pins in place for dry preserved specimens