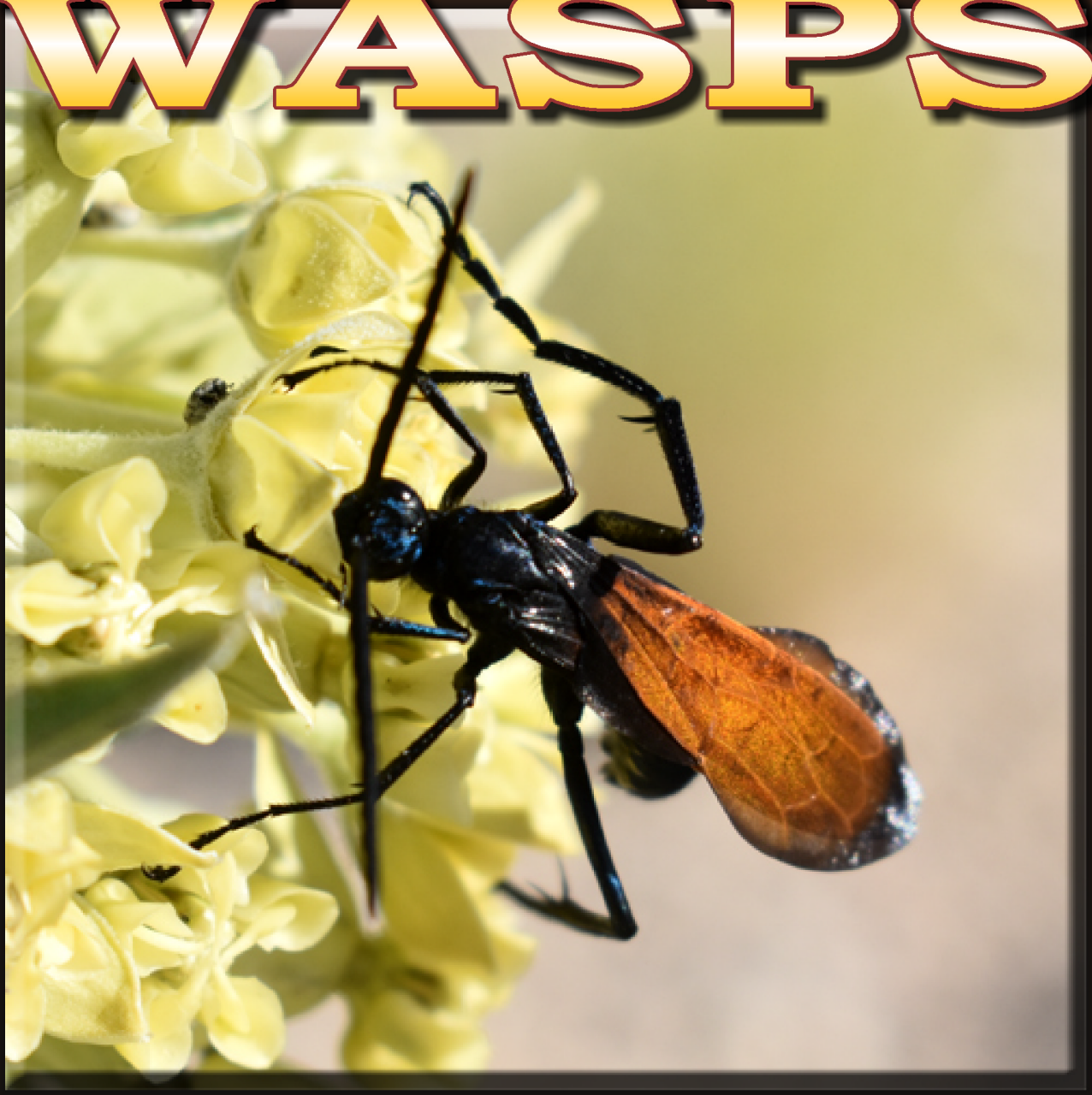
WASPS



Wasps are members of the order Hymenoptera, which includes ants and bees in the suborder Apocrita, and sawflies of the suborder Symphyta. Like their close cousins bees and ants, wasps are characterized by a very thin waist (petiole) that connects the abdomen to the metasoma (fusion of first abdominal section with thorax), versus the sawflies that lack such a structure and appear unwaisted. Likewise, these members (that comprise the subclade Aculeata) share another distinguishing feature: females of most species possess an ovipositor that is modified into a stinger that can inflict a painful defense against predators. These insects also possess several simple eyes (ocelli) positioned on the top of the head, and two pairs of membranous wings held together by small hooks (reminiscent of the frenulum found in moths). However, the females of many species lack any wings! Wasps generally also lack the pubescence (hairs) typical of many bee species, and they do not produce honey. While wasps in the family Vespidae are eusocial, most are solitary and parasitoid. Though annoying to humans, wasps are beneficial pollinating insects (but not as effective as bees), and are often used agriculturally to control pest species. With over 100,000 species worldwide and some 18,000 across North America, wasps are represented by over 50 species in the Mojave Desert.

Family CRABRONIDAE
(Square-Headed Wasps)

Green-Eyed Square-Headed Wasp
(Tachytes amazonus)

Dolan Springs, AZ

Dolan Springs, AZ

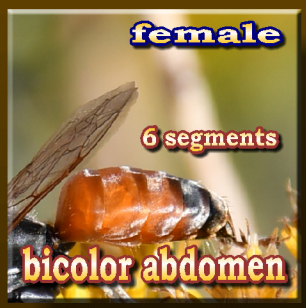
Measurements:

Average: Length: .5" Wing Span: .75"

Distinguishing Field Characteristics:

samll size; bicolored abdomen (red with black tip), black legs and antennae with white pubescent hairs; colorless wings; sharp constriction at waist; green eyes; (f) 6 abdominal segments, 11 flagellomeres (units of flagellum segment of antenna); ovipositor modified as a stinger; (m) 10 flagellomeres

Dolan Springs, AZ



Dolan Springs, AZ

Notes:

uncommon; solitary; unaggressive; found primarily in sandy or gravelly habitats throughout most of US south to SA; males often "hilltop" on flowers, waiting for females to arrive; adults feed on nectar; larvae in deep underground nest provisioned with various insect prey (mainly flies); beneficial as a pollinator; larvae pupate in about 2 weeks, overwinter in cacoon, emerge in spring (males first) as adults, mate, die off, then the cycle is repeated

Mojave presence: spring to fall

Comments:

These wasps are notoriously difficult to identify at the species level by macro visual means alone. One must get more intimate with studying/dissecting various minute body parts (i.e. antennae, genitalia, etc.), and have years of experience doing so, to have more confidence in the matter.

The overall appearance of the specimen above, photographed in Dolan Springs, AZ, in September of 2022, places it squarely in the crabronid family, genus Tachytes. Beyond that, it's best-guess time!

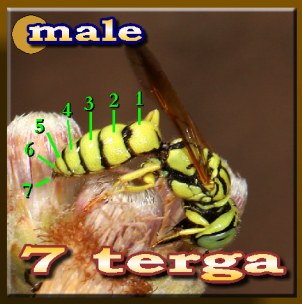
On very close-up inspection, the individual shown here has 11 flagellomeres on the flagellum segement of its antennae (the other two segments being the scape and pedicel), which identifies it as a female. Thus, her bicolored abdomen and black legs distinguishes her from T. desertus of which the female has an all-red abdomen and red legs.

Admittedly, the name I've applied to her is somewhat arbitrary, since there are so few references to the species to verify accurately. Let's just call it "prerogative" and move on.

Wa2

Family CRABRONIDAE
(Beewolf Wasps)

Pacific Burrowing Wasp
(Philantus multimaculatus)



Dolan Springs, AZ

Dolan Springs, AZ

Measurements:

Average: Length: .75" Wing Span: 1"

Distinguishing Field Characteristics:

medium size; long yellow abdomen with black bands (markings variable); black pronotum with yellow stripes (variaable in width, shape); yellow legs; colorless to smoky wings; green eyes; sharp constriction at waist; (m) 7 terga (abdominal segments); antennae have 10 flagellomeres; (f) 6 terga; 11 flagellomeres

Dolan Springs, AZ

Dolan Springs, AZ

Notes:

common locally; solitary; unaggressive; found in a variety of habitats in w US from CO/TX west to CA, British Columbia south to n MEX; adults feed on nectar of various plants (especially rabbitbrush, buckwheat, baccharis); larvae in underground nest provisioned with bees; beneficial pollinator; adult lifespan about 40 days

Mojave presence: Spring to fall

Comments:

Here is another example of a species that is relatively common, though not nearly so in the Mojave. This specimen of a beewolf wasp near Dolan Springs, Arizona, in October of 2022, enjoying the offerings of chinchweed flowers, is the first I've photographed. She was certainly a good model, providing many poses from different angles to help me identify her. The long yellow abdomen with black bars, the yellow stripes on the pronotum, and green eyes are characteristic of the genus Philantus. The species multimaculatus is the most common in the area, but is still a bit of a guess due to the great amount of variation of width/shape of the bands and stripes within the genus.

Wa3

Family MUTILLIDAE
(Velvet Ants)

Desert Velvet Ant
(Dasymutilla californica)

Clark Co. Wetlands Pk; NV

Clark Co. Wetlands Pk; NV

Measurements:

Average: Length: 1" Wing Span: ~1"

Distinguishing Field Characteristics:

large size; red pubescence overall (variable; sometimes yellow); black body, eyes, legs, antennae; resembles ants, but lacks their node-like petiole, and antennae are straight (not elbowed); (f) wingless; scurries on ground; (m) flies low to ground

Clark Co. Wetlands Pk; NV

Notes:

uncommon; diurnal; solitary; prefers sandy to gravelly desert soils in sw US; female's ovipositor modified into stinger; unaggressive, but females deliver painful sting if provoked; aka Red Velvet Ant (not to be confused with D. occidentalis); adults consume nectar; larvae parasitic in other ground-dwelling insect nests (wasps, bees, etc.)

Clark Co. Wetlands Pk; NV

Mojave presence: summer to fall

Comments:

Whenever I head out on a photo quest, I always say "I'll take what Nature gives me." And every day, she gives me something! Such was the case in August of 2022--a rather cloudy and thus far uneventful afternoon--at the Clark County Wetlands Park near Las Vegas when Nature finally presented me something special. It was a huge (comparatively speaking) velvet ant completely covered in long red hairs--my first (and so far only sighting) of this particular species! She was scurrying down a paved trail intersecting the one I was on, and her size and brilliant coloration made her incongruously conspicuous. I followed her for at least half an hour as she finally made her way off the pavement, through a gravelly field, and finally disappeared into the brush. Once again, Nature made my day!

It must be noted that many velvet ants in North America can be very difficult to identify down to the level of species. This specimen is certainly among those, as it looks quite similar to many others. Thus, only a skilled entomologist who has extensive experience and knowledge of various distinctive identifying characteristics can make a confident determination. Unfortunately, I am not one of them! The closest information I could find was referenced from Robert Siegel (robertsiegel@stanford.edu). Best guess is the best I can do, and unless/until someone with such knowledge informs me otherwise (which is very welcomed), D. californica is my best guess.

Wa4

Family MUTILLIDAE
(Velvet Ants)
Magnificent Velvet Ant
(Dasymutilla magnifica)

Dolan Springs, AZ

Measurements:

Average: Length: 8" Wing Span: ~1.25"

Distinguishing Field Characteristics:

large size; pubescent overall; black thorax, head, legs, eyes, antennae; red abdomen; resembles ants, but lacks their node-like petiole, and antennae are straight (not elbowed); (f) wingless; scurries on ground; (m) black wings; flies low to ground

Dolan Springs, AZ

Notes:

uncommon; solitary; primarily nocturnal; prefers sandy to gravelly soils in the desert sw US from CA east to NM, south into MEX; among the largest of velvet ants in the region; aka Red Velvet Ant (like the desert velvet ant, not to be confused with D. occidentalis); female's ovipositor modified into stinger; unaggressive, but females deliver painful sting if provoked; adults consume nectar; larvae parasitic in other ground-dwelling insect nests (wasps, bees, etc.)

Mojave presence: year-round

Comments:

As these velvet ants are mainly nocturnal, they are seldom encountered. However, when a female is spotted scurrying rapidly and erratically along the ground in the daytime, she is easy to recognize by species, since there are no others with her color pattern in the Mojave. The gal above from Dolan Springs, Arizona, photographed in December of 2021, is the only representative of this species I have encountered thus far. Unfortunately, I didn't have my actual cameras with me and had to rely instead on my cellphone camera. It was certainly better than nothing!

Wa5

Family MUTILLIDAE
(Velvet Ants)

Yellow Velvet Ant
(Dasymutilla bioculata)

Dolan Springs, AZ

Dolan Springs, AZ

Measurements:

Average: Length: 5" Wing Span: .75"

Distinguishing Field Characteristics:

medium size; pubescent overall; resembles ants, but lacks their node-like petiole, and antennae are straight (not elbowed); (f) orangish-yellow hairs (variable; sometimes red) on head, thorax, anterior portion of abdomen; tip of abdomen black; scurries on ground; (m) black wings; flies low to ground

Meadow Valley; Moapa, NV

Meadow Valley; Moapa, NV

Notes:

common (mainly nocturnal, thus seldom seen); solitary; prefers sandy to gravelly desert soils in the sw US; female's ovipositor modified into stinger; unaggressive, but females deliver painful sting if provoked; adults feed on nectar; larvae parasitic in other ground-dwelling insect nests (wasps, bees, etc.)

Mojave presence: summer to fall

Comments:

As with many velvet ants, yellows are seldom seen as they prefer to hunt at night. However, the occasional daytime hunter (likely seeking a ground-dwelling wasp/bee nest to invade and lay her eggs) like the ones above, will eventually be encountered if you keep a sharp eye out for them. The first one I ever spotted was the Moapa, Nevada, specimen in the Meadow Valley area in June of 2016. Since then, I hadn't seen any until finally a second female made her appearance in Dolan Springs, Arizona, in October, 2022. That's a long time to wait between sightings!

Wa6

Family MUTILLIDAE
(Velvet Ants)

Thistledown Velvet Ant
(Dasymutilla gloriosa)

Dolan Springs, AZ

Measurements:

Average: Length: .4" Wing Span: ~.6"

Distinguishing Field Characteristics:

small size; pubescent overall; black body, eyes, antennae; resembles ants, but lacks their node-like petiole, and antennae are straight (not elbowed); (f) long white hairs; no wings; scurries on ground; (m) short orange hairs; dark wings; flies low to ground

Dolan Springs, AZ

Dolan Springs, AZ

Notes:

common (mainly nocturnal, thus seldom seen); solitary; prefers sandy to gravelly soils primarily in creosotebush scrublands of desert sw US from CA east to TX, south into MEX; aka White Velvet Ant; female ovipositor modified into stinger; unaggressive, but females deliver painful sting if provoked; adults feed on nectar; larvae parasitic in other ground-dwelling insect nests (wasps, bees, etc.)

Mojave presence: summer to fall

Comments:

Like with all velvet ant species, males look like large ants with wings and are not readily recognized, while the females of this species are wingless and coincidentally mimic the furry white fruit of the creosote bush. They do not climb into the shrub to blend in with the fruit, but rather scurry quickly along the ground where the fruit have fallen from the plant and pushed along by the wind. Thus the female is conveniently protected by camouflage. If that doesn't work, however, she can deliver a very painful sting to whatever or whoever messes with her! That's her on the left making her way through some patches of low-growing Chinchweed (Pectis papposa) near Dolan Springs, Arizona, in August of 2022. Compare her to the white fuzzy fruit of the Creosote Bush (Larrea tridentata) on the right.

Wa7

Family POMPILIDAE
(Spider Wasps)
Tarantula Hawk
(Pepsis thisbe)

Clark Co. Wetlands Pk; NV

South Rim; Grand Cyn NP

Measurements:

Average: Length: 1.5" Wing Span: 3"

Distinguishing Field Characteristics:

large size; black body with blue iridescence; black eyes, legs, antennae; rusty orange wings (folded longitudinally); (f) larger than males; curled antennae; (m) straight antennae

Notes:

common; solitary; unaggressive; found in desert scrublands of the sw US; largest wasp in NA; adults nectarivorous, mainly on milkweed, mesquite, etc.; larva in nest provisioned with live, paralysed tarantula; multiple generations per season; adult lifespan 1-2 months; larvae, aproximtely 1 year

Mojave presence: spring through fall

Clark Mtn Range; S.B. Co.; CA

Corn Crk; Desert NWR; NV

Comments:

There are several very similar species of tarantula wasps whose ranges overlap in the Mojave region, making identification in the field rather impractical. They all display aposematic coloration with their black bodies and bright orange wings (a warning to potential predators). P. thisbe, shown here, is the most common. A close-up photo in good lighting will reveal that this species has antennae divided into 13 segments, plus their abdomens are 6-segmented on females; 7 on males.

Wasps of this and related species are notorious for their excruciatingly painful stings (one of the most painful in the insect world). Fortunately the venom is not particularly toxic to humans, and the pain usually dissipates after about half an hour. However, though these wasp can deliver a whopping sting, they are docile, approachable, and very reluctant to attack, making for great opportunities to get supurb up-close photos.

Wa8

Family SPHECIDAE
(Digger Wasps)

Great Black Wasp
(Sphex pensylvanicus)

Willow Spg; RRCNCA, NV

Willow Spg; RRCNCA, NV

Measurements:

Average: Length: 1" Wing Span: 1.25"

Distinguishing Field Characteristics:

large size; semi-glossy black body, head, eyes, legs, antennae; smoky black, iridescent wings (folded longitudinally); sexually monomorphic (though females slightly larger)

Willow Spg; RRCNCA, NV

Willow Spg; RRCNCA, NV

Notes:

common; solitary; found in various habitats (fields, meadows, prairies, deserts. etc.) with sandy to gravelly soils throughout most of NA from e CAN, across US, south into MEX; female ovipositor modified into stinger; though unaggressive, can inflict a painful sting if sufficiently provoked, but not medically significant; adults feed on nectar and pollen; larvae provisioned in underground nest with various live, paralyzed insects (especially katydids); aka Katydid Hunter, Steel-Blue Cricket Hunter; important pollinator, particularly of milkweeds, beans, carrots, etc.; adults active summer to fall ; larvae pupate through winter

Mojave presence: July to October

Comments:

Though common throughout its range, this species is not one that I have seen very often in the Mojave region. I encountered the female shown above as she was busy digging her nest in the Willow Springs area of the Red Rock Canyon National Conservation Area in March, 2017.

I photographed the individual on the left while it was busy scrounging for a meal at the Henderson Bird Viewing Preserve in October of 2022. A few days earlier, another found sustenance from a Goldenbush (Ericameria linearfolia) in Dolan Springs, Arizona (right). Notice the characteristic blue iridescence in their wings.

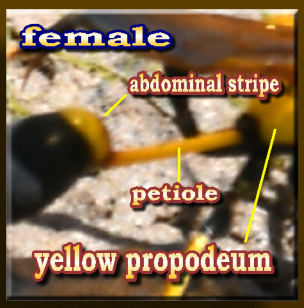
Wa9

Family SPHECIDAE
(Digger Wasps)

Black & Yellow Mud Dauber
(Sceliphron caementarium)

Clark Co. Wetlands Pk; NV

Clark Co. Wetlands Pk; NV



Clark Co. Wetlands Pk; NV

Clark Co. Wetlands Pk; NV

Measurements:

Average: Length: ~1" Wing Span: ~1.5"

Distinguishing Field Characteristics:

medium-large size; black head, thorax, abdomen; yellow bands on thorax (individually variable); orange-brown wings (folded longitudinally); yellow legs, black at base, black mid-leg band on rear pair; black or yellow (southwest), long, very thin petiole ("wasp waist"); stripe on anterior abdomen yellow to orange; genders similar, except yellow propodeum (basal abdominal segment fused to thorax) of females

Notes:

common; solitary; found in a variety of habitats, especially open areas with soft soils for nest building throughout NA, introduced worldwide; aka Yellow-Legged Mud Dauber, Black-Waisted Mud Dauber; unaggressive, except when defending nest (stings considered medically unimportant); adults nectarivorous; larvae in nest provisioned with small spiders; multiple generations per season

Mojave presence: spring to fall

Comments:

Though common in general, I have not seen these wasps very often in the Mojave region. The long, thin petiole is unmistakable in the field as to the type of wasp, then the yellow and black colors and the black abdomen with a yellow or orange stripe reveals the species. Keep an eye out for these unaggressive wasps anywhere moist soil can be found, such as the specimen above in the Duck Creek wetlands area at the Clark County Wetlands Park in the Las Vegas Wash drainage basin in east Las Vegas.

Wa10

Family SPHECIDAE
(Digger Wasps)

Common Thread-Waisted Wasp
(Ammophila procera)

Dolan Springs, Arizona

Dolan Springs, Arizona

Measurements:

Average: Length: ~1" Wing Span: ~1.5"

Distinguishing Field Characteristics:

medium-large size; black thorax, head, antennae, legs, wings; (folded longitudinally); black eyes on sides of head; dark, long, thin, petiole ("wasp waist"); bi-colored abdomen (orange anterior, black posterior); sexually monomorphic

Dolan Springs, Arizona

Dolan Springs, Arizona

Notes:

common; solitary; found in open areas with soft soils for nest building throughout NA south to Central America; unaggressive; adults feed primarily on nectar, sometimes small insects; larvae in underground nest provisioned with caterpillars, various other small insects; considered beneficial due to its hunting of plant-consuming caterpillars; multiple generations per season

Mojave presence: spring to fall

Comments:

These wasps can be difficult to spot and photograph due to their very thin profiles that blend in with their surroundings. They also don't stay put for very long at any given flower, but rather are constantly on the move flitting from one nectar source to another, as demonstrated by these two exploring the dainty yellow flowers of Chinchweed (Pectis papposa) in Dolan Springs, Arizona, in October of 2022. Note how they dangle their long, spindly legs behind them as they fly (reminds me of jumping frogs!).

Wa11

Family SPHECIDAE
(Digger Wasps)
Cutworm Wasp
(Podalonia argentifrons)

Willow Spg; RRCNCA, NV

Measurements:

Average: Length: 1.25" Wing Span: 1.5"

Distinguishing Field Characteristics:

large size; short petiole; black thorax, head, eyes, antennae, legs; iridescent, smoky wings (folded longitudinally); (m) bicolor abdomen (orange anterior, black posterior); (f) entirely black abdomen (looks similar to many black wasps); spikey "rakes" on fossorial (front) legs

Willow Spg; RRCNCA, NV

Notes:

common; solitary; found in open areas of the sw US with soft soils for nest building (e.g. desert scrublands and pediments); adults consume nectar; larvae in underground nest provisioned with cutworm caterpillars; beneficial pollinator and important control predator of cutworm moth caterpillars

Mojave presence: spring through summer

Comments:

While the genus of this wasp is widespread and relatively easy to determine, identifying down to the species level with confidence is an entirely different matter for anyone other than a specialist. It can be excruciatingly diffficult! Best guess is usually all one can achieve. However, P. argentifrons is rather common in the Mojave, including the Las Vegas area; Red Rock Canyon NCA is only 19 miles west of the city, which is where the male above was photographed in May of 2019 enjoying the nectar provided by a Desert Marigold (Baileya multiradiata).


photo: Aaron Schusteff

These wasps are often confused with those in the genus Ammophila. However, podalonids have shorter petioles than ammophilids, which is the most reliable clue to the genus Podalonia.

Note how the female's legs (right) are designed to clasp around her caterlillar prey, and her forelegs have comb-like structures for digging nest holes and removing the dirt.

Wa12

Family SPHECIDAE
(Digger Wasps)

Ashmead's Digger Wasp
(Sphex ashmeadi)

Photo: Timothy S. O'Neal II

Red Spring; RRCNCA; NV

Measurements:

Average: Length: 1.5" Wing Span: 2"

Distinguishing Field Characteristics:

large size; black thorax, head, eyes, antennae; brownish, smoky wings; yellow-orange abdomen, petiole, legs; (m) black femur; 7 abdominal segments; (f) red femur; 6 abdominal segments; tarsal rake on forelegs

Notes:

uncommon; solitary; found in sw US from s TX west to CA, south to northern MEX (rare elsewhere); adults feed on nectar; larvae provisioned in underground nest with paralyzed katydids; important pollinator of milkweeds, which in turn is vital for Monarch Butterfly caterpillars

Mojave presence: late spring to fall

Comments:

The female shown here (note her orange femora) in Dolan Springs, Arizona, in October of 2022 found herself in a very unfortunate situation--hopelessly entangled in a spider's web! Even though she was the largest wasp I have ever encountered, and was clearly distressed enough to inflict a painful sting, I naturally couldn't just abandon her. So I imposed myself on her fate and offered my assistance. I assume she appreciated her rescuer, because she didn't attack me once freed from her dilemma!

Wa13

Family VESPIDAE
(Paper Wasps)
Apache Paper Wasp
(Polistes apachus)

Henderson BVP; NV

Red Spring; RRCNCA; NV

Measurements:

Average: Length: 1.25" Wing Span: 1.5"

Distinguishing Field Characteristics:

large size; yellow base color with copper-brown markings and abdominal bands (variable thickness); 2 transverse yellow stripes on mesonotum; orangish wings folded up and away from body; brownish to greenish compound eyes; orangish antennae (curled in female; straight in male); mostly yellow legs; very short petiole

Henderson BVP; NV

Red Spring; RRCNCA; NV

Notes:

common; eusocial; found usually near water (springs, ponds, etc.) in open areas (grasslands, meadows, etc.) of w NA from TX west to CA, and CO south to MEX; female will inflict painful sting (not usually medically significant) in defense of her nest, but otherwise generally unaggressive; papery, cellular nests constructed on undersides of sheltered locations (rock ledges, eaves, railings, etc.) with exposed cells beneath nest; aka Texas Paper Wasp; adults nectarivorous; larvae provided with regurgitated caterpillar bits; beneficial for pollination and insect pest control; several generations per year (first infertile female workers, then more workers, followed by males and fertile females (future queens that overwinter)

Mojave presence: almost year-round

Comments:

The individuals shown here display the characteristic coloration of copper brown on yellow. Note the two very thin, yellow transverse stripes on the copper-brown mesonotum (dorsal mid-thoracic segment) on the above lower left photo. Also, there can be considerable variation in the thickness of the bands on the abdomen, from thick to almost absent.

Specimens--like the male (upper right) inspecting Watercress (Nasturtium officinale) at the Red Rock Canyon National Conservation Area in July, 2017--are reliably encountered in the Red Spring area. Since the females oftentimes choose to make their nests on or close to the boardwalk that traverses the meadow, stings can be common!

The Henderson Bird Viewing Preserve is another area where this species is commonly found, as demonstrated by the female (upper left) alighting on an unknown species of a cultivated tree in October of 2022.

Wa14

Family VESPIDAE
(Paper Wasps)
Golden Paper Wasp
(Polistes aurifer)

Cerbat Range; Chloride, AZ

Cerbat Range; Chloride, AZ

Measurements:

Average: Length: 1.25" Wing Span: 1.5"

Distinguishing Field Characteristics:

large size; body colors variable by region, ranging from black with yellow bands, to almost entirely yellow; legs and abdomen yellow with slight orange banding; infuscate (dark brownish) wings; orange antennae (male: straight; female: curled)

Cerbat Range; Chloride, AZ

Notes:

common; eusocial; found in various habitats (woodlands, wetlands, prairies, deserts near water, etc.) of w NA from s CAN south to n MEX; generally unaggressive, but female can inflict painful sting in defense of her nest, though not usually medically significant; large, papery, cellular nests constructed on undersides of sheltered locations (rock ledges, eaves, railings, etc.); adults nectarivorous; larvae provided with regurgitated caterpillar bits; beneficial for pollination and insect pest control; several generations per year (infertile female workers, more workers, then males, and fertile females (future queens that overwinter)

Cerbat Range; Chloride, AZ

Mojave presence: spring to fall

Comments:

The male shown here rafting on the water's surface shared a water tank with several Comanche Paper Wasps and numerous Honey Bees. The shallow tank was situated in a cattle corral off of Big Wash Road near Chloride, Arizona, in July of 2019. Obviously, desert water sources like these tanks attract a very wide variety of wildlife throughout the year.

Wa15

Family VESPIDAE
(Paper Wasps)
Comanche Paper Wasp
(Polistes comanchus)

Cerbat Range; Chloride, AZ

Cerbat Range; Chloride, AZ

Measurements:

Average: Length: 1.25" Wing Span: 1.5"

Distinguishing Field Characteristics:

large size; brown-black thorax and head with orangish markings; posterior abdomen mostly yellow (with thin dark bands) separated from dark first couple anterior segments by reddish band; yellow legs with dark femur; infuscate (dark brownish) wings; orange antennae with dark central band (male: curled; female: straight)

Notes:

uncommon; eusocial; found in various habitats in sw NA from sc US to nw MEX; 2 subspecies; generally unaggressive, but female will inflict painful sting in defense of her nest, which, unlike other paper wasps, is built in cavities; adults nectarivorous; larvae fed bits of caterpillars and other insects

Mojave presence: almost year-round

Comments:

The specimens shown here are likely subspecies P. c. navajoe. Of the two subspecies of this particular wasp, this is the only one recorded as occuring in Arizona, and is more widespread than P. c. comanchus (which is generally found in southwest Texas, New Mexico, and adjacent areas of Mexico). This makes differentiating the two subspecies easier in the areas where their ranges do not normally overlap. Of course, animals can go where they please, and do not necessarily adhere to the restrictions of books and research papers! So, there's still a good amount of quesswork here on my part without closer study.

Comanches are much less common than the Golden Paper Wasp with whom they were sharing a watering tank, along with numerous Honey Bees, in a cattle corral off of Big Wash Road near Chloride, Arizona, in July of 2019. Though these wasps are active almost year-round in the warmest part of their range (but mainly spring to fall), these are the only ones I've encountered so far.

Wa16