Record heat in the Southwest is producing an extremely buggy summer season. Populations of many pests, ants, scorpions, beetles, earwigs, etc. have increased due to the record setting temperatures.

Insects are cold-blooded; their body temperatures are regulated by the temperature of their environment. Cold weather makes the internal temperature of the insect drop, causing them to slow down. But in hot weather, they become more active, larvae grow at a faster rate, reproduction cycles speed up and they move faster.

Hot and dry conditions send many pests indoors as they seek moisture and cooler temperatures. These extreme temperatures may be putting a damper on your outdoor recreational activities for a while, but the silver lining for your pest control company should be a nice increase in revenue.

On another note, on behalf of the Nevada Pest Control Association, I would like to take this time and thank Grady Jones of Western Exterminating for the outstanding job he did while serving as a Board Member for the Nevada Department of Agriculture. Grady’s recent promotion with Western Exterminating will result in managing a program in many different western states. Grady’s dedication to Western and this program will be extremely time consuming and we wish him well in all his future endeavors. I will personally miss his great articles that he has authored for our industry.

As of this writing, Grady’s position has not been filled by the Governor of Nevada. I am advised that three names have been selected for the Governor’s consideration.

EXPO 2014—my fellow officers and I have secured three outstanding speakers for our upcoming 2014 Pest Expo, scheduled for January 31st, 2014 at the Orleans Hotel & Casino. Jeff Weier will be covering flying insects. Sylvia Kenmuir’s subject will be the Ants of the Southwest. Stanton Cope will speak on Insects and Public Health. I will address Laws and Regulations. We are looking forward to another outstanding conference.
It is much easier to speak about insects in terms of a common name instead of some long drawn out latin name. The problem is that it stereotypes the insect and stifles your thinking about where to find them and how to achieve control. For example: The Black carpet beetle. It infers it is black and attacks carpets. The adults can be dull dark brown or black. The adults do not feed on carpets, they feed on pollen. The immature form (larva) has a very wide range of feeding habits. It feeds on material made of keratin which includes bird feathers, turtle shells and mammal hair. So when one is looking for an active infestation, you may find it in a lucky rabbit’s foot, a stuffed moose on a wall or a ladies hat with feathers.

To further throw you off track, the larva do quite well feeding on dried dog food and powdered milk. This now increases the locations you have to look to seek out the source (SOS).

One last curve. Back in the early 1900’s, people used whatever was available to insulate walls. This included stuffed mattresses packed with horse hair. The beetles can live in the walls for decades and suddenly thousands of beetle larva come crawling out to pupate. Here control requires opening the walls and removing the old wall insulation.

The immatures of these insects also do quite well feeding on dead insects. Now the search must include dead honey bee nests in a wall, paper wasp nests in an attic and invading insects which die in walls.

It is interesting to note that with more and more synthetic carpets the beetles have less to eat. In favor of the beetles is the fact that the old cyclodienes, (Aldrin, dieldrin, endrin) are no longer used to treat the carpets. With the older pesticides, the beetles did not stand a chance to survive in a carpet for decades.

There is much more to searching for the breeding sources of an insect than simply focusing on its common name. To add insult to injury the Latin name can even change. Its most recent Latin name is Attagus unicolor (Brahm).

The next time someone tells you that they have black carpet beetles, your mind should have a much broader picture than a carpet.

One last point. Make sure it is the black carpet beetle. There are grain beetles called Trogoderma (cabinet beetles) that look very similar to the untrained eye.

Betta - Continued from page 3

Check out our updated web site which includes photos of our last Expo and Meet and Greet. (www.nevadapca.org) Last year’s expo had a record 344 attendees. Sign up has begun. You may sign up on line.

We currently have 110 outstanding companies registered as members who have attended our past expo, association meetings and some have elected to attend our yearly Africanized Bee Class and are listed on our NPCA Emergency Bee Hotline.

The Nevada Pest Control Association is a willing coalition of pest control professionals, allied for the promotion of excellence and awareness in the Nevada pest control industry. Each and every member submits themselves to conform to the standards set by the association, meaning that our customers will receive the best service possible.

Hope everyone has a great summer and stays COOL!
The point is that I would work on this during the slower reactive, so I used to think of it as being proactive for next year. That way, the glass is half full, not half empty.

I’m talking about “Repeats” that we can control. I’m talking about contingency planning. I also refer to this as the “what if’s” of business.

You can control things like planning when you want to buy new trucks, painting or decaling vehicles, painting the building, hiring and training plans for new employees. You can also put aside cash and/or seek loans or plan to borrow money for items you will need next year.

Look at revising or creating your training programs, revising or updating your collection efforts. Review your agreements. Update or create Employee Manuals.

If you don’t do these things, you will be destined to confront the same problems next year plus the new problems that arise. I know many companies that have been facing the same problems for 10-15 years. One medium-sized company with several offices has little, if any, growth and can not keep a single sales rep. The problem is the way they pay (or don’t pay) their sales reps. They know that this is the problem and they have yet to invest in sales reps. Same problem – different year.

Ironically many of my consulting jobs involve the owner/managers needing my help in formulating a plan to implement the changes that they know have to be made. They just don’t know how to make the changes and/or there are family members involved or old habits they and/or their employees will find hard to change.

To recap, if there are things you don’t want to do again next summer – write them down. Write down the ideas you’ve had. Put them all on a pad on your desk and this winter you can begin to make the changes you need to make so that you don’t repeat them all on a pad on your desk and this winter you can begin to make the changes you need to make so that you don’t repeat those situations again and again and again and again and again.

*STUFF TO AVOID NEXT SUMMER*

Every summer I used to have a legal pad entitled, “Stuff to Avoid Next Summer.” I used to jot down problems that I had that I did not want to reoccur next year. This is very reactive, so I used to think of it as being proactive for next year. That way, the glass is half full, not half empty.

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So many people have hypothesized that roaches will be the last creature standing after an apocalypse. After studying myrmecology (the study of ants) at California Polytechnic Pomona, with the textbook “The Ants” by Bert Holldobler and E.O. Wilson (1990), I am convinced it will be the resourceful ants who will claim this final victory. Some important reasons for their success are the diversity of niches in the world’s ecosystem and their unique and bizarre lifestyles which have made them successful in the world biomes.

Examples of the adaptations of ants include a Formica species of ant that will enslave other timid species of ants as workers for their colony. The Leaf cutter ants can cut and carry leaves double their size for the purpose of growing fungus on the leaves for food. My favorite are the honey pot ants where the unique worker, “the replete” possesses a distensible crop in which honeydew and nectar are stored regurgitating that food during winter months to feed the colony. It was hard not to be hooked on ants after that course. Thank you Dr. Chris George!

Long after school, I have used that knowledge to train proper identification of ants to many Pest Management Professionals (PMP’s). Identification is a critical component to using Integrated Pest Management (IPM) in your management programs. Because of their size, ants can be a challenge when it comes to identification. It is important for PMP’s to become familiar with their local species of ants. It is critical to know how to properly identify an ant and assist in reporting new introduced non-native species and potentially destructive ants to your supervisor or county/state official. This reporting system is critical for our industry’s success in managing problematic outbreaks of pests.

Local species of ants across the United States are subject to displacement due to what myrmecologists refer to as “tramp” ant or invasive ant species. Many of these tramp ants are territorial and aggressive towards intruders. The “Queen” of the tramp ant species in the west is the aggressive Argentine ant (Linepithema humile). It has been well documented that Argentine ants have created super colonies with thousands of queens and millions of workers. It is difficult for other ants (native and invasive) to push back once they are established in an area. Argentine ants dominate Arizona, California and Nevada as the number one ant complaint call. Another tramp ant species that has invaded the west, which has a great economic importance, is the Red and Black Imported Ants (RIFA & IFA). Both have been found in Nevada. Reporting these ants findings are important because these ants can damage crops and are listed as a Federal Quarantine (7 CFR 301.81) pest.

The “AnTswer” To Limiting Tramp Ants Species Establishment Is In Proper Identification

Sylvia Kenmuir, Entomologist, Training and Strategic Marketing Director Target Specialty Products

Rover ant (brachymyrmex sp.)

We need to keep an alert eye out for a new tramp ant species on the horizon. There is new research being conducted in the laboratory of Dr. Paul Baker with graduate student Javier Gerardo Miguelena Bada at the University of Arizona on the biology and management of the Rover ant (brachymyrmex sp.). The Rover ant has established niches in many parts of Arizona and California in spite of its tiny stature, and can become a significant nuisance for homeowners. Because it is so small (1.5-2.0 mm long), it can invade structures through very tiny cracks and crevices that other ants cannot access. These ants have become a regular service call for PMP’s in cities like Tucson, Arizona and Palm Springs, California.

The Asian Needle Ant (Pachycondal chinesis) is another ant worth our attention. These stinging ants have been in the U.S. since the 1930’s. Over the last few years their populations have grown and are starting to become an issue in many parts of the U.S. Their ability to displace the Argentine ant is a notable feat. Current research at North Carolina State by Drs. Rice and Silberman published in the journal PLOS ONE, has shown that Argentine ants were displaced by the Asian needle ants. It appears the Argentine ants “ignore” the Asian needle ants. Asian needle ants use this to their advantage to out compete the Argentine ants during colder months of the year. Asian needle ants are similar in stature to Argentine ants and could be mistaken if not properly identified. Their ability to tolerate colder temperatures, eat just about anything including termites and thrive in unique habitats from urban areas to forests makes them a threat. Continued on page 10
them a challenge in our attempts to limit their spread. To human, the most concerning attribute is their ability to deliver a painful sting. As with imported fire ants, many people who are allergic to stings of bees and wasps are candidates for an allergic reaction to their Hymenopteran relative the ants. Invasive species like the Asian needle ant make proper identification of ants critical.

It is imperative to look closely at the ants we are managing and confirm an accurate identification in order to expect any level of success in a pest management program. Identification success begins by collecting the sample ant. The best way to collect ants for identification purposes is by using an aspirator (www.biоquip.com). This is a device used to collect small insects and avoid squishing the ants. Another method is to use a small paint brush. Dip the brush in a vial of 70% ethyl or isopropyl alcohol. Next touch the ants with the tip of the wet brush and quickly transfer the brush with the “stuck” ants into the vial. Take extra care with any collection method you use when collecting ants that may sting you. A good sample size for ant identification is a minimum of 20 specimens. If the ants are polymorphic (varying in size), try to collect all sizes. Reproductive ants (ants with wings) can be especially challenging for identification because their body structures are so different than the workers. Collect worker specimens in addition to the reproductives in order to ensure proper identification.

Once the ants have been collected what do you do next? Nevada is fortunate to have skilled state entomologist, Dr. Jeff Knight, for insect identification (http://agri.nv.gov/Plant/Entomology/Entomology). By all means attempt to identify the ant yourself. You will need a few important tools to aid in viewing your insect. First, a microscope or good hand lens (25x or higher) is necessary to see the structures important for identification. You will also need good reference materials to key out your ants. For the high tech technician, the UC IPM website has an online key system you can use (http://www.ipm.ucdavis.edu/TOOLS/ANTKEY/). If you are old school, like me, you can use printed materials such as the “Handbook of Pest Control” by Mallis or the “PCT Guide for Structure Infesting Ants” by Hedges. Please note that these guides can be limited if the ant you are attempting to identify is a new invasive species. For a complete guide to all ants, you can find everything you need in “The Ants” by Holldobler and Wilson. Measuring 12” by 10” and weighing 7 pounds, this reference is not one you can easily use in the field but you will find extraordinary reading as well as viewing of the many remarkable photos. Finally, an out-of-print reference piece for the collector is the “The Ants of Nevada” by George and Jeannette Wheeler. This book is specific to the state of Nevada and currently sells online for up to $190.00. This book has great keys for identifying ants and makes a great addition to any aspiring myrmecologist’s collection.


Photo credit: Benoit Guénard, Postdoctoral Researcher, Biodiversity and Biocomplexity Unit, Okinawa Institute of Science and Technology, Okinawa, 904-0495, Japan

Asian Needle Ant (Pachycondyla chinensis)
Target and Ehrlich Distribution have merged their East and West Coast operations to provide, under the Target Specialty Products name, one of the largest distribution networks in the nation. And we’re not just catering to the big guys. We provide wholesale distribution of specialty agricultural and pest control chemicals to any business, anywhere, large or small, with same day/next day service. We have the experienced and highly trained staff to provide you with all the help you’ll need to better serve your customers.

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THANK YOU TO ALL THE BUSINESSES THAT SUPPORTED THE ASSOCIATION AT THE 2013 PEST EXPO

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NEVADA PEST CONTROL ASSOCIATION REGISTRATION FORM

All fields must be completed on the following application. This information will be used for the membership directory. • Register online at www.nevadapca.org/memberapp.html

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______________________________
Signature _____________________________________________________________________________Date _____________________________________________
flies belong in the Order Diptera which is one of the largest orders of insects containing thousands of species. Pest control professionals are concerned with what are termed Synanthropic flies. Synanthropy is a close association between flies and man, usually contrary to man’s wishes. Flies can be considered synanthropic in three ways, directly associated with people (mosquitoes and other biting flies), associated with domestic animals feeding on the animals or their byproducts (Dung) and those that find suitable shelter and/or food in residences and other structures. Although we may deal with all of these groups from time to time, our primary concern is specific to the third group, those that shelter and feed in human structures. When developing control programs for flies, we must have one overriding goal, Seek Out The Source. Without finding the source of the flies, control measures will fail short of expectations. Here are a few basic principles when searching for the source.

Know the Fly
Adult flies are dispersed widely throughout the environment but their larvae are found in localized areas, living in a preferred food source. Proper identification of the fly that is causing the problem is critical in providing information regarding the preferred food sources. At a fundamental level, some flies originate outdoors, some commonly originate indoors and some can be found in either area. This information can tell you where to begin your search. In general small flies such as small fruit flies, drain flies, Phorid flies and fungus gnats breed indoors while large flies, such as house flies, lesser house flies and blow flies breed outdoors. There are always exceptions where small flies originate outdoors and large flies originate indoors but the basic principle provides a starting point.

Each species of fly has preferred food sources. Once the fly is identified, the most likely food sources can be identified. Larvae of the small fruit fly (Drosophila melanogaster) feed on yeasts found in fermenting fruits and vegetables. A search for the source of these flies should start indoors and focus on finding fruit and vegetable residues that can support fermentation. There are several reference books that provide information on food sources for the different fly species.

Use Your Nose
When you know the types of foods that flies prefer, you should use all of your senses to identify breeding sites. Using the small fruit fly example, you would seek out odors that are related to fermentation such as alcohol or “fresh bread” aroma that indicates yeast based fermentation. Phorid and drain flies are often associated with drains and sewage. In this case you would seek out odors that smell like sewage. Experience will help you identify specific odors associated with different flies.

Think Small
Flies do not need much food, so you will be looking for small patches of food. A teaspoon of an appropriate food can produce dozens of small flies. Even large flies require relatively small amounts of food for development. Most fly infestations result from multiple small sources rather than one large one. If a particular patch of food is a source of flies you will see larvae or pupae in the food material. If you do not find maggots, you do not have a source. Since multiple small sources are often present, do not stop your search after one source is identified. Keep looking, there will be more. Only when adult flies are no longer present can you assume you have found all of the sources.

Look for the Unusual
Although we usually find fly activity in spilled food, floor drains, outdoor dumpsters and trash cans, they can originate in less obvious places. Sugary liquids in soda dispensers and drain line can form a substrate that will support small fruit fly activity. Dumpsters and surrounding areas can be a source of large flies. Don’t forget the soil around these areas. You will know when you find a source when you see maggots or pupae.
Third, a common purpose and clear goals are paramount to success. Have you ever been part of a committee or other group and during a meeting, you want to shout out “what exactly are we trying to accomplish here”? I know I have! One handy tool is at the first meeting, the leader should ask each group member (assuming the group is small enough) to briefly state what the group is tasked with accomplishing, what that individual expects to get out of the evolution, and why he/she was chosen to participate. The leader can then mold this input into a common purpose and clear goals for the group, which results in buy in and helps all to feel that their contributions are important.

Fourth, collaboration is key, not only between the leader and the group but also among group members. They must be willing to work together and keep focused on the common purpose and goals, not on individual agendas.

Fifth, the group must be highly motivated but for what, exactly? To succeed with the task? Certainly! However, the outcome of the group’s effort may be flawed or lacking in substance if they are not motivated and disciplined enough to follow a logical sequence of steps including, but not limited to: 1) clearly defining the issue; 2) examining the past history and/or origin of the issue; 3) thoroughly researching all pertinent information; 4) engaging in lively and critical discussion; 5) laying out all feasible options; 6) picking the best course of action; 7) implementing the plan; 8) after a predetermined period of time, evaluating the plan and making any necessary changes.

Steps 7 and 8 are the most important, as with many organizations, the ‘process is the product.’ That is, they go through some type of exercise but produce no tangible product.

Finally, the group must be empowered to effect real, intended change within the organization. Have you ever been part of a committee or other group that worked very hard for a long time, only to have their conclusions and recommendations completely disregarded by decision makers? We probably all have. Leadership vs. Management

Once in a seminar on leadership, the speaker was asked to compare leadership and management. After struggling for a time, he said “well, leaders lead and managers manage”. Talk about stating the obvious! I see leadership operating in four major areas:

1. Change - Recognizing the need for change within an organization and implementing the change in the least disruptive way possible. This is not always easy; in fact, it rarely is as most people initially resist change. However, after the change takes

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effect, don't be surprised if many people tell you, the leader, that it was needed and should have been done long ago!

**Influence –** Leaders inspire their organization through their decision making, passion, daily behavior, and adherence to company and personal values. Employees who are inspired feel good about themselves and where they work, and they want to do the best job possible. Also, they will be shining stars in representing the company on the outside.

**Motivation –** Motivation is different from inspiration. Employees who are highly motivated will take initiative, finish projects on time or even ahead of schedule, work extra hours when needed, and well, they will get the job done the right way. They give their best effort at all times.

**Influence –** Good leaders who are respected influence members of an organization individually as well the organization as a whole. In addition, they set the tone and culture of the work place on a daily basis.

A good leader will spend much of the time functioning externally from the organization – being visionary, proactive, seeking new businesses and contacts, anticipating future trends and problems, traveling to meet with potential new customers, etc.

What about management, you say? I see management as primarily an internal function. Tasks such as meeting goals, implementing strategies, maintaining good equilibrium in the workplace, employee training, scheduling social events, and many other day-to-day operations fall into the management realm.

**Weier: - Continued from page 16**

In conclusion identifying the sources of flies can be overlooked during your surveys. A recurring issue with Lesser House flies could be the result of human waste that is deposited in shrub and flower plantings around the exterior of buildings. These areas might be overlooked during your surveys.

In conclusion identifying the sources of flies can be challenging but is a skill that can be learned. Finding and eliminating the source is key to eliminating flies. So use all of your senses, all of your knowledge, and take the time to Seek Out the Source!
The Regulatory Corner

**"NOTIFY THE NDA WITHIN 48 HOURS!"**

By Lee Lawrence
Nevada Department of Agriculture - Sparks Office

During the 2013 legislative session, some concerns were raised by lawmakers about the pest control industry’s emergency preparedness. Specifically what measures are in place to ensure companies have the information, training, tools, etc., to handle problems? The NDA explained to legislators that the pest control industry as a whole is one of the most highly regulated industries in the country and is subject to both state and federal regulations which encompass every aspect of pesticide manufacturing, handling and use. It was also explained that about half of Nevada’s pest control regulations are related in some way to safety!

One of the State’s regulations related to safety is the requirement that the NDA be notified within 48 hours of any situation involving a possible pesticide poisoning which results in someone, or their animal, receiving medical treatment (NAC 555.410.4). Medical treatment can be as basic as a doctor visit for a mild headache, or as serious as someone or their pet receiving a life saving procedure.

Despite the amount of safety related continuing education we receive, label use precautions we try to obey, or how carefully we apply pesticides, there is always the possibility that Murphy’s Law will strike and something will go wrong. During my years with the NDA I have seen instances where applicators have done too-good-of-a-job and wound up causing a problem such as over applying an indoor fog to control cockroaches or herbicide to control stubborn weeds. The end result of these over-applications can be a kitchen coated in oil, or a lawn that is damaged because the concentration of the broadleaf selective herbicide applied was so high that it damaged the lawn and killed the trees and shrubs rooted in it!

If a problem occurs that results in someone seeking medical treatment or their pet or livestock is seen by a veterinarian, the NDA must be notified within 48 hours after the incident. Companies should not be afraid to contact the NDA about these situations. Once a problem occurs the NDA is available to assist concerned individuals with information about pesticides and pest control practices that they may have questions about. If a misapplication is suspected, the NDA does not “encourage” affected individuals to file a complaint, but does inform them that a written complaint must be filed before the Department can look into an issue. Only about half of these individuals actually file a complaint. Of the complaints filed, only about half of them turn out to be valid pesticide misuse issues; and only a few of these actually represent pesticide misuses that require medical treatment.

As previously mentioned, when a problem does occur and medical treatment is sought, companies are required to notify the NDA within 48 hours after the incident. However, past experience has shown that notification as soon as possible after an incident is usually best. Early notification gives the Department the opportunity to perform research and to prepare for any phone calls or emails about an incident. Please understand that the NDA is NOT an emergency response agency and should not be the first contact in an emergency situation. Each company should have its own emergency response plan for accidental poisoning, fire, flood, spill/decontamination, etc.

What happens when the NDA is not notified within 48 hours? There are a number of problems that can occur. Probably the most significant is that medical treatment may be compromised for the affected party because they may not fully understand what to do, who to contact, or what they can do to minimize their exposure (change or decontaminate clothing, leave the area for a specific period of time, etc.). One of the most damaging aspects of failing to notify the Department is the perception of a company trying to cover up a mistake. This perception, whether intentional or not, can be used by attorneys as proof of deliberate misconduct. If a company is at fault, but the NDA was not notified, there is a good possibility that stricter penalties (fines) will be assessed, including an additional fine of $500 for violating NAC 555.410.4. Many of the State’s pest control fines are listed in ranges (e.g. $100-$500; NAC 555.530). When assessing a fine, the NDA often has the ability to consider lower amounts if the company took a proactive approach in handling a problem, including contacting the Department within 48 hours after an incident and has cooperated with inspectors. Working through these problems with the NDA is always the best approach.

There is no doubt that problems are going to occur, but it’s how we choose to handle them that can make a big difference in the outcome. Working through them with the NDA has consistently proven to be in the best interest of everyone, especially when the NDA is notified soon after they occur, or at least within 48 hours.

**FROM THE ENTOMOLOGIST’S MICROSCOPE:**

**PEST IDENTIFICATION**

By Jeff B. Knight, Entomologist
Nevada Department of Agriculture
www.agri.state.nv.us

### Nevada Ticks

Nevada has at least twenty-four species of ticks. These arachnids are parasites on various animals and require blood meals in order to grow and reproduce. Most often a tick will feed, drop off the host, molt to the next stage, and then find a new host for the next meal. A female tick may lay several thousand eggs. These hatch into six-legged larvae that must find a host within 30 days or they will die. After feeding they develop into eight-legged nymphs that may live up to 300 days without feeding. Adult ticks have been known to live almost two years.

Ticks are divided into two families: the soft ticks, Argasidae (Fig 1) and the hard-backed ticks, Ixodidae (Fig 2). Soft ticks lack the hard scutum or plate across the dorsal surface and are rarely found in non-agricultural settings. They live in ranges of temperature and humidity, and many are vectors of disease. Hard ticks have a more restricted range of habitats, and most of them live in or near forests.

#### **Fig 1 Soft tick (photo NDA)**

**Fig 2 Rocky Mountain wood tick, Dermacentor andersoni (photo NDA)**

This tick may infest yards close to native areas. It can sometimes be recognized by the white patterning on the dorsal plate. However, a close relative, the American dog tick, *Dermacentor variabilis* looks very similar and can only be separated using a microscope. The Rocky Mountain wood tick may carry Rocky Mountain Spotted fever, Tularemia, and Colorado Tick Fever. The level of these diseases in Nevada is so low they are not considered to be a threat.

Another common hard backed tick is the brown dog tick, *Rhipicephalus sanguineus*. The dorsum of this tick lacks the white patterns found in the above two ticks. This tick will sometimes infest homes and yards. Over 2,000 pesticides are registered for tick control in Nevada. In treating infested areas, the applicator should be sure the hosts are also being treated.

Another tick now found in Nevada is the Western Black Legged tick, *Ixodes pacificus* (Fig 3). This tick has only been found outside of Reno and at a site in east central Nevada. It can be distinguished from the above ticks by the longer mouthparts and the lack of festoons (posterior ridges) (Fig 1.3). It is a tick that can carry Lyme’s disease, but as of yet the disease has not been found in Nevada.

For proper removal of ticks visit the CDC site at http://www.cdc.gov/ticks/removing_a_tick.html.

#### **Fig 3 Western black legged tick, Ixodes pacificus, (photo by Utah State University Plant Pest Diagnostic Lab)**
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