Alison Foulis - City Clerk

From: Wyman C. Harris
Sent: Sunday, October 16, 2016 1:35 PM
To: Claire McAuliffe; Marty Winter; James Campbell; Bob McCaskill - Councilmember; Nancy Kemnitzer - Councilmember; Mary Neilan - City Manager
Cc: Frank Greene; Marshall Turner; John Owen; Meg Crofton; Wyman Harris; Carolyn Hansen
Subject: Deer in Belvedere

Dear Mary and City Council,

The attached discussion regarding deer in Belvedere is respectfully submitted for your information and reading pleasure. Much of it is not necessarily new but it is a compilation of information (pro and con) that has come to light during the past six months. As always, we are available to assist you in your deliberations. Thank you for your considerable effort in seriously taking on this important issue.

2016 Deer Committee

Deer in Belvedere

The issue boils down to two questions:

1. Are there too many deer in Belvedere?
   If not, do nothing.

2. If so, what is the best way to manage the population?

Are there too many deer in Belvedere?

--If left unchecked, deer populations can grow exponentially. As the number of deer continues to increase, it is likely that deer-related conflicts will also continue to increase. Habitat will degrade and in the long run, the deer will suffer as the population becomes malnourished, unhealthy, and susceptible to disease.

--In response to citizen concerns about deer-related problems, the City of Belvedere established a Deer Committee in 2009. Approximately 1,000 questionnaires were mailed by the City of Belvedere to residents. A total of 474 responses were received, reflecting significant public interest in the urban deer issue. 58.4% of city residents and 71.3% of Belvedere Island residents said that the deer population should be managed so that there will be a decreased deer population.

--Since 2009 the number of deer has swelled such that damage to private and city property has increased dramatically along with more human/deer conflicts. Areas where lush foliage once thrived have been eaten down to bare ground. Permanent damage is being done to Belvedere's hillsides--this is particularly true of City right-of-way areas. The resultant small landslides are an increasing cost to the City as more yards are fenced.

--According to the U.S. Forest Service and The Nature Conservancy, "too many deer are a bigger threat to eastern forests than climate change … it's hard to think of a more insidious threat to forests, farms and wildlife, not to mention human health and safety, than deer."

A similar situation exists in Belvedere where deer are changing the habitat. The deer population must be reduced to allow the habitat to recover. The "right" population is the level at which deer can survive without damaging the habitat upon which they depend.

Action to reduce the population must be taken--the sooner the better.

What is the best way to manage the population?

The alternatives:

--Culling by sharpshooting or darting and euthanizing. Many communities (including Angel Island) have chosen some form of culling to manage the deer population. It may be the cheapest, most effective and humane method. Culling is not recommended at this time, but may become necessary as the population continues to increase. However, killing programs aimed at reducing deer populations are often controversial, difficult to execute safely in urban and suburban areas, and don't result in long-term population reduction.

--Relocation. Also not recommended. At Angel Island, culling is now used because relocation proved to be expensive and fatal to the deer.

--Sterilization

--Immunocontraception

Surgical Sterilization

What is the surgical sterilization process?

White Buffalo Inc. has developed a technique for surgical sterilization of deer. This technique removes the deer's ovaries and is similar to, but less invasive than a cat or dog spay. The animal is typically in and out of surgery in less than 20 minutes, and the mortality rate is less than 2%. The technique begins with deer capture via tranquilizer dart. The deer is then transported to a surgical bay. The surgical prep and surgery take approximately 20 minutes. After surgery, the deer is returned to the field, a reversal agent is administered and the animal is observed from a distance to ensure all is well.

What is the status of this technique?

We are actively conducting sterilization projects to gain a baseline on what can be expected with a "fertility control only" approach. We want to determine what can be accomplished under the best-case scenario with very high percentage treatment rates in "real" suburban settings (e.g., population demographics, reduction rates, immigration effects, cost, etc.).

Our present research is focused on the relative effort of sterilization versus vaccine delivery to treat high percentages of local populations. Our hypothesis is that the extra effort/cost per deer to retrieve and sterilize females is significantly less than the cost of repeatedly retreating the same female during its life, particularly when combined with the reduced efficacy of the vaccines (~10% do not respond to contraception versus 100% effectiveness of surgical sterilization).

When would this technique be used?

The appropriate technique to manage deer depends on a variety of considerations, ranging from the goals of the community to legal restrictions. The population impact of this technique is still being evaluated, but we are conducting trials in areas where there are high densities of deer, people and road networks. The two most important site criteria are animals that are easy to access with a dart projector and a road network that allows us to access the deer. The situation in Belvedere is ideal for this technique.

For more information visit: WhiteBuffaloInc.org

Pros

-Only handle the animal once.
-Can use a variety of volunteers to reduce costs.
-100% effective for all animals.
-Deer who have received ovariectomies do not go into heat, so bucks are not attracted to the area during mating season (adding to the deer population).
-Perceived as a humane solution.
-Very low mortality rates.

Cons

-Deer persist in landscape, giving a delayed population reduction.
–Initial cost is higher than other methods.
-This is not a permitted management option in most states, it is still only permitted as research.

Effects of Sterilization

Once sterilized by ovariectomy, a doe will never give birth again. The first and immediate result of sterilizing the females in a deer herd is that herd growth through fawning, which can exceed 25% per year for urban deer, will stop and the deer population will be stabilized (i.e., the only additions to the population will be through immigration, not births). Thereafter, the population typically will shrink through natural attrition. The rate of reduction will depend upon a variety of factors (including immigration of any new, unsterilized deer), but most communities experience a reduction of 10% to 20% per year.

Deer sterilized by ovariectomy do not go into heat. This means they do not attract bucks to the area and breeding activity (chasing, for example) that has been associated in some communities with an increase in deer-vehicle collisions is reduced or eliminated. Additionally, because sterilized deer do not spend almost 7 months every year pregnant and 2 to 3 months nursing, they have lower caloric needs (so they graze less) and are healthier.

Anticipated advancements in the efficacy and duration of PZP and GonaCon may make

contraceptives a better option than sterilization in the future. If the City allows the program to continue long-term, a switch from sterilization to contraceptives for fertility control in migrant deer may become desirable.

FREQUENTLY ASKED QUESTIONS ABOUT SURGICAL STERILIZATION

What is an ovariectomy?
An ovariectomy is the removal of a female deer's ovaries. The procedure is similar to, but less invasive than, typical spay surgeries used to sterilize domestic dogs and cats. Using the "rapid ovariectomy" technique developed by Dr. Steven Timm, DVM, and the White Buffalo team, preparation and surgery take place in the field and typically take 20 minutes or less.

What is the process for capturing, sterilizing and releasing deer*?*
The capture and sterilization team works at night when deer are most active and people are not.

Wildlife professionals dart female deer with tranquilizers at bait stations and private drives (where volunteered), and from vehicles on public roadways within the study area.

The deer are tracked until they are unconscious. A capture team recovers and transports the doe to a temporary surgical sterilization site, typically accompanied by a police officer. A licensed and trained veterinarian then performs the ovariectomies and gives the deer injections of long-acting antibiotics and pain medication.

All sterilized deer are fitted with numbered ear tags, and one mature doe in each matrilineal group will be radio-collared to facilitate future capture efforts, track migration rates and patterns, and assess survival rates. Data regarding size, age and condition is also collected.

Treated deer are then returned to the area where they were captured (in locations with the lowest likelihood of human disturbance during recovery), administered a reversal agent, and are monitored for complications with recovery.

The entire process, from initial darting to release, takes approximately 1 hour per deer.

Is the procedure humane? What is the surgical mortality rate?
Surgical sterilization is routinely used to control population growth of domestic animals (i.e., dogs and cats) and has also been used in at least 14 species. It is recognized as safe and humane for use in deer by the Humane Society of the United States and the Animal Welfare Institute. The surgical mortality rate, as reported by

The Humane Society of the United States and in White Buffalo studies, is less than 2%. Sterilized deer tend to be healthier and calmer than fertile deer because they don't experience the physical stresses of being chased by bucks during mating season and of pregnancy, birth and nursing.

What about rights of residents who do not want the proposed activity to take place on their property?
Darting will not be done from private property without permission. A deer may be on private property when engaged, and will likely have to be retrieved from private property. If folks let the City know that they do not want to be part of the project, then it is very easy to avoid their property for all aspects of the operation. This solution requires a community-based approach.

What happens to a deer that is darted and then goes to sleep on a property where owners will not permit access?
The deer will recover on its own. There is no need for a reversal agent. However, such lack of cooperation only results in the same deer being darted again, so they are actually doing the deer a disservice.

Is there a public safety issue?
White Buffalo has darted over 1,000 deer in areas like Belvedere with no issues.

Will the procedure be done in a sterile environment?
Yes. The procedure is done by experienced veterinarians in a temporary surgical facility designed to be sterile.

Will the steep slopes and rugged terrain of Belvedere prevent darted deer from being recovered?
The darts have radio transmitters that aid in tracking and locating darted deer. The White Buffalo team has recovered animals from terrain that is much more rugged than Belvedere and is confident that they will be able to operate successfully here.

Why sterilize female deer and not males?
Suburban female deer typically spend their entire lives in matriarchal herds in a small (1 square mile or less) range. Male deer travel, particularly during rutting season, and will breed as much and as often as the opportunity presents itself. Because a single unsterilized male can impregnate as many female deer, across multiple herds, as several unsterilized males, there is little advantage to sterilizing males unless every single male over a large geographic area can be located, captured and sterilized.

Why are sterilizations only done in Fall or Winter?
There are several reasons: (1) Deer can be more easily lured to bait stations and captured when foliage, their normal food source, is scarce; (2) they are more easily tracked when the forest canopy cover provides minimal visual obstruction; and (3) sterilizations done after March 1st, when female deer are typically entering the late

stages of pregnancy, are more complicated as the surgeon must work around an enlarged uterus, increasing risks to maternal and fetal health. Further, pregnant deer give birth typically between April and July, and may still be nursing as late as September. Taking these factors together, the optimal time for sterilization is between October and Mid-February.

Are deer put at risk by having surgery in cold weather?
No. Unlike the situation with small animals (such as feral cats), deer are biologically adapted to living outside in winter. Veterinarians who have performed the procedure in the field have determined that deer are not harmed by post-surgical release into cold weather conditions.

What is the impact of sterilization on the fetus of a pregnant doe?
It depends upon the stage of pregnancy. The gestation period of a female deer is typically between 190 and 210 days (a little less than 7 months). Most deer will become pregnant in November or December and will give birth between the months of April and July.

Up to approximately the 150th day of pregnancy (the 5th month), the ovaries are necessary to sustain a deer's pregnancy, so sterilization will result in miscarriage. The fetus at this stage of pregnancy is still extremely small (likely less than 1 lb.), and there is no evidence that deer experiencing miscarriages under these circumstances are harmed.

After approximately the 150th day of pregnancy, the ovaries are not necessary to sustain pregnancy. A deer sterilized after the 150th day of pregnancy can be expected to give birth to the fawn(s) she is carrying in the Spring, but will thereafter be infertile.

How do ovariectomies differ from tubal ligations? Will tubal ligations ever be used*?*
Ovariectomies involve the removal of the ovaries; the deer becomes infertile and will never experience estrus (i.e., go into heat) again. Tubal ligations involve the tying of the deer's fallopian tubes to prevent implantation of a fertilized egg in the uterine lining. Deer with tubal ligations continue to experience estrus, and because they do not become pregnant after breeding, they may continue to cycle for up to 5 months. Having a large number of female deer repeatedly going into heat over a multiple month period has been associated in one field study with an increase in the number of bucks drawn to the study area; even though the population of female deer and fawns declines with tubal ligation, the overall population may not be reduced (at least during the breeding season) because of the influx of bucks.
It is White Buffalo's practice to only do tubal ligations when a deer is found to be in late state gestation and switching to a tubal ligation is necessary to protect maternal or fetal health. Because White Buffalo does not perform sterilizations after March 1st, these occurrences are quite rare. Out of over 500 sterilizations performed by White Buffalo since 2009, tubal ligations have only been necessary in 22 cases

(about 4.4% of the time).

Why choose sterilization over immunocontraception?
While both methods are viable alternatives to lethal population control, sterilization is the only option at present that is 100% effective and that does not require repeated treatments. Researchers are working on advancements in contraceptive agents and delivery technology that may make immunocontraceptives the better choice in the future. Until then, sterilization offers the most practical and most cost effective method of fertility control.

Which is more invasive – immunocontraception or sterilization?
It depends on how one defines "invasive." Sterilization involves a 20 minute surgery, but only occurs once in the deer's lifetime and does not involve chemically altering the deer's reproductive processes. Immunocontraceptives do not involve surgery, but do require repeated darting of the deer throughout their lifetimes with contraceptives that chemically alter their reproductive processes.

Can deer die from the shock of being darted and handled? That might happen if the procedure is done by inexperienced personnel. White Buffalo has darted and handled thousands of deer with very few problems.

Won't reducing the deer population in Belvedere simply open up more room for more deer to move in from Tiburon? Female deer are very philopatric and do not move much in the landscape. Most projects are in open suburban environments, with deer all around, and immigration has been negligible so far. This is very predictable based on deer behavior. The Villages (San Jose) has tagged deer that come and go through the front gate, and they have deer all around and by no means a deer-proof perimeter fence. There has been zero immigration for nearly 3 years.

Will we eventually run out of deer?
In a connected island environment like Belvedere, some unsterilized deer will migrate into the area. Once population goals are reached, a decision will be made as to whether migrating deer need to be sterilized in order to maintain a healthy population level with neither too many -or too few – deer.

What is the goal of deer population management? The population should be reduced to a level such that the environment can recover from over grazing.

How much will it cost? The contractor's budget estimate is $82,460 to sterilize all of the female deer in Belvedere. Subsequent costs should be minimal.

Who will pay? Residents in favor of this method have pledged to pay for it.

Will taxpayer money be spent on project? There will be some indirect expenses such as police overtime that may come from the City budget. Like any problem, the City sometimes has to spend money that may not benefit every citizen.

The deer were here first. Why not just leave them alone? Many long-time residents attest to the fact that deer first appeared in Belvedere about 30 years ago. At first they were rarely seen but the population steadily increased to the point that by 2009 based on public concerns regarding increasing conflicts with deer and their behavior, the City of Belvedere established a Deer Committee to explore population management approaches. Now the excessive population has degraded the environment to the point that it will not recover unless the population is reduced.

Do the perceived problems created by deer in Belvedere justify the proposed extreme tactics?
The problems are real. The proposed solutions are not extreme and have been used successfully in many other locations.

Why not just build more, higher fences and plant deer resistant plants*?* Many residents have followed these recommendations by the 2009 Deer Study with some success in protecting individual plots but not every square foot of Belvedere can be fenced. Public right-of-way and private property that cannot be fenced due to topography have been denuded and are eroding. Deer are now eating plants that heretofore were considered "deer resistant." When deer jump over a six-foot-high fence or go under or through a fence they can do extensive damage in a short time.

Why not just shoot them? Many communities (including Angel Island) have chosen some form of culling to manage the deer population. It may be the cheapest, most effective and humane method. If the recommended non-lethal method proves infeasible then culling will have to be explored in depth.

If implemented, won't this proposal subject the City of Belvedere to ridicule?
Maybe so, but when it proves successful many communities with urban deer issues will want to copy us.

Why continue to pursue a proposal that is highly divisive that may lead to confrontations? A majority of Belvedere citizens want to manage the deer population so that there will be fewer deer. A vocal minority wishes otherwise. The Belvedere City Council has wisely chosen to listen to both sides and to consult with various "experts" before making a decision about how to manage the deer problem. Unless some action is taken, the problem will not go away but will get worse. It is better to take action now rather than waiting until the problem is bigger, more expensive and more confrontational. In the end some people may be unhappy with the outcome.

White Buffalo, Inc. offers sharp shooting as part of its repertoire. How can residents be comfortable hiring a company that employs such cruel methods of wildlife management?

Methods of deer management were researched nationally and White Buffalo was the recommended choice due to experience, success rates, professionalism and nonprofit status. The State of California approved WB for this exact work in San Jose. White Buffalo is widely recognized as the world leader in wildlife management and in development of non-lethal methods of deer population management.

Culling by sharpshooting is very humane and is approved by the American Veterinary Medical Association (AVMA) as a painless form of euthanasia. Deer culling by sharpshooting calls for a disciplined staff to employ a diversity of methods to maximize safety, delicacy and effectiveness. The deer culling sharpshooting technique is frequently applied in suburban and urbanized areas with accessible public and private properties. Generally all deer meat is given to area food shelters and soup kitchens for distribution to those who may need it. White Buffalo Inc.'s methods are humane and address concerns for animal welfare by following the American Veterinary Medical Association's stringent guidelines for humane euthanasia of animals (AVMA 2013).

Chapter 8.04 of the Marin County Code of Ordinances (Animal Control) states: "It is unlawful to suffer or permit any animal to trespass on private or public property so as to damage or destroy any property or thing of value…Any animal committing such an act is a Public Nuisance." Doesn't the City of Belvedere have a responsibility to address this Public Nuisance?

Yes. The City has taken the issue seriously by responding to a call by the citizens to address the problem.

IMMUNOCONTRACEPTION of DEER

There are two chemical contraception options available: GonaCon™ and Porcine Zona Pellucida (PZP).

GonaCon™ (including a formulation known as "GonaCon-Blue") is a gonadotropin-releasing hormone (GnRH) immunocontraceptive vaccine that stimulates the production of antibodies that bind to GnRH, a hormone that signals the production of sex hormones (such as estrogen and progesterone). By binding to GnRH, the antibodies reduce GnRH's ability to stimulate the release of these sex hormones. As a result, mating activity is reduced and a deer receiving GonaCon™ will be infertile for as long as a sufficient level of antibody activity is present. GonaCon™ has been registered with the EPA for use in white tailed deer 1 year of age or older.

Currently, a single shot of GonaCon™ is highly effective in the first year, and in some deer antibody levels remain high enough to prevent pregnancy for up to 5 years. However, antibody levels fall off more quickly in other deer, such that 20% to 50% of treated deer regain their fertility between treatments. The efficacy rates tend to

be higher in controlled studies (e.g., with captive deer) than in typical field conditions.

GonaCon™ currently is only EPA registered for hand injection each time it is given (rather than being registered for remote darting). This means that a deer who is first treated with GonaCon™ at age 1 will likely need to be captured, sedated, and vaccinated at least twice in her lifetime, and may still give birth to multiple fawns. Scientists are working to develop improvements to GonaCon™, including possible oral or remote darting delivery methods. These improvements are not yet available and their timing is uncertain.

Porcine Zona Pellucid (PZP)
PZP is a naturally occurring protein found in pig eggs. When the PZP vaccine is injected into the muscle of a female deer, it stimulates her immune system to produce antibodies against the vaccine. These antibodies block fertilization, but unlike GonaCon™, do not suppress the stimulation of sex hormones, so deer receiving PZP continue to go into heat. In fact, PZP appears to extend by approximately 2 months the estrus cycles of treated deer who do not become pregnant. There is no evidence this harms the treated deer, though it does extend the mating season and may increase undesirable mating behavior such as chasing. PZP has been registered with the EPA for use in wild horses and burros. It has not yet been registered for use in deer but is approved routinely for research purposes.

The most researched formulations of PZP have been found to be highly effective when given twice in the first year (the vaccine and a booster several months later) and annually thereafter. Newer formulations currently being tested in field studies do not require a first year booster and can last up to 2 or 3 years, and treatments after the first one can be delivered remotely by dart. The efficacy of the multi-year formulations of PZP start at 90% to 95% and may decline further in years 2 and 3 (meaning that at least 5% to 10% of the treated deer will give birth to fawns between treatments). **A deer who is first treated with PZP at age 1 will likely need to be treated 3 to 4 times in her lifetime**.

As with GonaCon™, scientists are working to develop improvements to PZP (to increase the length of time needed between treatments, as well as its efficacy) and current delivery technology. These improvements could make contraception using PZP a much more desirable option, but they are not yet available and their timing is uncertain.

Advantages of Sterilization over Immunocontraceptives Today

We believe sterilization is the best choice at this time because:

- Sterilization is 100% effective over the lifetime of the deer. The effectiveness of multi-year immunocontraceptives declines over time. Any non-lethal

program will only be successful in reducing the deer population if natural attrition through death and emigration exceeds natural increases through births and immigration. Even a 10% "break through rate" (deer who become pregnant between treatments) can be enough to offset natural attrition.

- Sterilization requires only one treatment over the lifetime of the deer. Immunocontraceptives require multiple treatments.

- It is less expensive to sterilize each deer once than to vaccinate every deer multiple times.

- Deer subject to repeated darting tend to become "educated", making them less approachable and less easily lured to bait traps. Locating and successfully revaccinating previously treated deer becomes more challenging and labor intensive over time. This does not happen with sterilization.

- A deer that is sterilized and emigrates out of the study area will remain infertile and will not contribute to fawning in her new area. A vaccinated deer that leaves the study area (or who can't be located or darted when it is time for her revaccination) will become fertile again.

- If the program does not continue, sterilized deer will remain sterilized. The investment will not be lost. Deer who have been vaccinated will become fertile again, and the investment in contraceptives will be lost.

- Deer who have received ovariectomies do not go into heat, so bucks are not attracted to the area during mating season (adding to the deer population) and undesirable "chasing" and other breeding activity do not occur. With PZP, the breeding season is actually extended by up to 2 months.

- An experienced sterilization program provider is available. Finding an experienced contraception program provider may be challenging.

- If contraception becomes a better choice in the future, there will be no loss or impediments to switching methods on immigrant deer.

What about Lyme disease?

Lyme disease is a very real scourge in many parts of the country and it has infected some residents of Belvedere. It can result in debilitating and even crippling injury. Black-tail deer are intimately involved in the complex environmental loop that infects the ticks that bear Lyme disease. There is little question that as deer have colonized areas, Lyme disease has spread as well. There is also evidence that once Lyme disease is endemic in an environment, it is very difficult to eradicate, though

there have been a few cases where this was managed.

Now scientists have revealed that the disease is more widespread in the Bay Area than previously thought, and not only that, a newer pathogen - different from the culprit known to cause Lyme disease - is being discovered in an increasing number of local parks and grasslands. Lyme disease is on the rise in Marin County over the last decade with more and more people being diagnosed (according to the doctors trained to treat Lyme in the Bay Area e.g. Stricker, Green, Leone, McDougall, Patel, etc). Marin already is a hot spot for ticks and tick-borne illnesses such as Lyme disease, and this year, after a soggy winter, the threat could be worse, some specialists say.

"Ticks thrive in moisture," said Linda Giampa, executive director of the Bay Area Lyme Foundation, a Palo Alto-based nonprofit. "A lot more ticks are expected to be out this season than there have been in the last few years of the drought."

If we have the opportunity to reduce the incidence of Lyme Disease by reducing the significant increase in the deer population, we would be wise to seize on that opportunity for the benefit of everyone in the community.

While there is also evidence that a significant drop in deer numbers may lead to a drop in Lyme disease cases, this is very difficult to track or prove. Lyme is not a disease that the government mandates to be reported to a central database like those run by the CDC (Center for Disease Control). An individual is diagnosed at a doctor and treated there, with no reporting necessary. Residents use doctors throughout the metropolitan region and it would be almost impossible to gather meaningful statistics that would show a drop in Lyme disease incidence over time. As a result, while we have some reason to believe that should deer numbers drop significantly there may be a concurrent easing of Lyme disease risk, we are not stating this as a formal objective of the project or a criteria of success.

Fewer Deer may Mean Less Lyme Disease

Since white-tailed deer serve as the primary host for the adult blacklegged tick (*Ixodes scapularis*) — the vector for Lyme disease — scientists have wondered whether reducing the number of deer in a given area would also mean fewer cases of Lyme disease. Now, after a 13-year study was conducted, researchers in Connecticut have found that reduced deer populations can indeed lead to a reduction in Lyme disease cases. The results of their study are published in the *Journal of Medical Entomology*.

The researchers surveyed 90–98% of all permanent residents in a Connecticut community from 1995 to 2008 to document their exposure to tick-related diseases and the frequency and abundance of deer observations. After hunts were initiated, the number and frequency of deer observations in the community were greatly reduced, as were resident-reported cases of Lyme disease.

The number of resident-reported cases of Lyme disease per 100 households was strongly correlated to deer density in the community, they found. Reducing deer density to 5.1 deer per square kilometer resulted in a 76% reduction in tick abundance, a 70% reduction in the entomological risk index, and an 80% reduction in resident-reported cases of Lyme disease. "Our study demonstrated that deer populations can be manipulated to reduce human interactions with deer, infected nymphal ticks, and human risk of contracting Lyme disease."

"Reducing deer populations to levels that reduce the potential for ticks to successfully breed should be an important component of any long-term strategy seeking to reduce the risk of people contracting Lyme disease," they concluded.

Lyme Disease—Marin Magazine
Of Ticks and Misery
Marin filmmaker documents Lyme disease's toll

Critics have called the new documentary *Under Our Skin* many things, including "superb" (*Time Out New York*), "expert storytelling" (Tribeca Film Festival), "artfully shot, dramatic" (*Variety*) and "a riveting, taut thriller" (Maine International Film Festival).

Director Andy Abrahams Wilson calls it a chance for atonement. "My twin sister contracted Lyme disease years ago," says the Sausalito resident in the Bridgeway office that houses his production company Open Eye Pictures. "And I didn't realize how ill she was. In hindsight I wasn't patient or understanding. I thought maybe she was just being lazy."

It took Wilson two years, 350 hours of film, and bottomless heartache to learn how wrong he was. The Emmy-nominated producer/director plunged himself into the Lyme disease issue: documenting the lives of sufferers, investigating the controversies about treatment, exposing a conflict-of-interest scandal in the medical establishment—and raising the red flag of epidemic.

"That is not too strong a word, no," the handsome 44-year-old says solemnly. "The Centers for Disease Control estimate that more than 200,000 people are getting Lyme each year—which makes it the fastest-growing infectious disease in the country, greater than AIDS and West Nile virus combined."

For those unacquainted with Lyme disease, it can result from a bite of a deer tick infected with the bacterium *Borrelia burgdorferi*. Symptoms range from rash, fever, chills and body aches to joint swelling, weakness and paralysis. When diagnosed correctly and early, it's relatively easy to cure; when misdiagnosed, unrecognized or left untreated, the disease can be debilitating or even deadly.

And the North Bay is a potential hotbed of Lyme infection. “Just the other day I was in our neighborhood restaurant having lunch,” says Wilson, “and knew pretty much everyone in there. And when I added it up, I realized that fully half of them had Lyme disease. And that’s just one little slice of Marin life.”

There’s no way of knowing exact numbers, he says. “California doesn’t keep records on Lyme—we’re not required to. But Marin, Sonoma, Napa, Mendocino and Santa Cruz counties are all fertile ground for the deer tick that carries it.”

Unfortunately, Wilson says, Lyme is so hard to diagnose that thousands of people are either undiagnosed or misdiagnosed as having other primary ailments—from chronic fatigue to depression to fibromyalgia to MS and ALS. Marin resident and author Amy Tan, who appears in *Under Our Skin*, was misdiagnosed for years, suffering effects ranging from headaches to brain lesions, temporarily ending up in a wheelchair. No one in her fleet of doctors even considered that she might have Lyme.

“Amy’s story is sadly typical,” says Wilson. “It’s a twofold failure of the medical community: they don’t know the best ways to test for Lyme, and even when they conclude it is Lyme, they can’t agree on how to treat it.”

The film suggests that the medical board governing treatment for chronic Lyme is guilty of conflicts of interest and in bed with insurance companies—a contention now confirmed by a successful lawsuit brought by Connecticut Attorney General Richard Blumenthal.

As if the misery of Lyme weren’t enough, insurance companies have been refusing to pay for its treatment. “It’s because the medical gatekeepers (primary care providers) haven’t recognized chronic Lyme as a disease,” says Wilson. “Obviously, since it’s a long-term illness, it’s an expensive one. Insurance companies want to pretend it doesn’t exist.”

Marin County Lyme Disease Support

At our monthly meetings, Lyme patients and their loved ones can gather to discuss the challenges faced in diagnosing, treating, and coping with Lyme disease and other tick-borne illness (including babesiosis, bartonella, and erlychiosis). The important thing is that our meetings offer a safe and supportive place where Lyme patients and their friends, families can learn more about this disease in a supportive and compassionate group setting. It's a safe place where you can tell your story, learn from others, and work towards healing with others who know how difficult it can be to deal with this confusing and often disabling disease. We will sometimes have presentations, treatment updates, and educational talks about Lyme and its treatments. Meeting Date: Third Monday of each month.
Meeting Time: 7:00 PM - 9:00 PM
Meeting Location: Marin General Hospital, Conference Room C
Founded Aug 15, 2012

Lymies 122 (Up from 112 at the end of May 2016)

Stanford Medicine

On August 18, 2013, the Centers for Disease Control and Prevention (CDC) announced its ten-fold increased prevalence estimate of Lyme disease, from 30,000 new infections per year in the U.S. to a preliminary new estimate of 300,000.

Lyme Borreliosis, more commonly known as Lyme disease, is the most frequently reported vector-borne illness in the United States.
Lyme disease affects individuals of all ages and is caused by the bacterium Borrelia burgdorferi, transmitted through the bite of a tick. The disease is characterized by a signature “bulls-eye” rash around the bite-site in the early localized stage of Lyme disease, although this rash is not always present. Symptoms of headache, fever and fatigue can present soon after infection. Lyme disease can cause worsening symptoms over time during early and later disseminated stages. It is thought to be responsible for devastating effects in the health of humans including serious disease and sequelae in the brain, heart muscle and joint tissue. Meningitis, cranial neuritis, radiculoneuritis, peripheral neuritis, carditis, heart block, migratory musculoskeletal pain, intermittent or chronic arthritis, polyneuropathy, and chronic encephalopathy affecting memory, mood, or sleep have been associated with B. burgdorferi infection.

CORRECTING MISLEADING INFORMATION ABOUT THE LYME DISEASE SUPPORT GROUP AT MARIN GENERAL HOSPITAL.

In a letter sent to the City Council on 9/30/16, a person from the 2016 Deer Group compiled a list of "130 names of people in Marin County with Lyme Disease." It stated 112 of those came from the Lyme Disease Support Group at Marin General Hospital. That number was later adjusted to 122 (currently 121).

This Marin County Lyme Disease Support Group meets from 7-9 pm on the third Monday of the month at Marin General Hospital. It turns out one can join this group through "Meetup" online. One does not have to physically attend the group meetings (in fact, the attendance is very low) or even live in Marin County. A "Meetup" is an online social networking site. As Meetup states, "People from all over the world can share their common interests with others and meet offline through Meetup."

This group IS NOT exclusive to people residing in Marin County. This Meetup group has participants from the East Bay, the South Peninsula, Vacaville, Vallejo, American Canyon, Eureka, Stockton, Santa Barbara, and North Hollywood. There are also participants from the states of Texas, Kansas, Tennessee, Oregon, Colorado, and Oslo, Norway. Some people simply signed up because they have a friend or relative who may have Lyme disease. Some people have not even been medically diagnosed with Lyme disease, others think they contracted Lyme disease outside of Marin County in Los Angeles, the Santa Cruz Mountains, Alabama, or the East Coast.

In sum, the information that there are "130 names of people in Marin County with Lyme Disease" does not accurately convey the low prevalence of this disease in Marin County.

Sincerely,

Mimi Ganz
111 Bayview Avenue
Belvedere, CA 94920

Alison Foulis - City Clerk

From: Nancy Barbour
Sent: Friday, October 21, 2016 2:52 PM
To: Alison Foulis - City Clerk
Subject: Lyme Disease

To The Members of the Belvedere City Council and the Residents of the City of Belvedere:

I would like to thank the City Council for offering the informative presentation on October 10th by Angie Nakano of the Marin Sonoma Mosquito Vector District. It was comforting to hear that Lyme Disease in Marin County is rare, and that the disease is quite treatable if correctly diagnosed.

I find it quite disturbing that some members of our community seem intent on spreading misinformation and questionable anecdotal comments about this disease.

If you are concerned about Lyme Disease, the council has given us a wonderful opportunity to educate ourselves with print materials from the Mosquito Vector District (available on the city website) as well as the audio presentation by Ms. Nakano from the October 10th City Council meeting.

Sincerely,
Nancy Barbour