([01:02](https://www.rev.com/transcript-editor/Edit?token=4G1E5GHDEvb5UUmIP5Ok372Y59jxhoppxEGP2i2FLQvSUVnp8MNVQDEJnQYF-pZi2vX1yak9g-zLyIQPKpMZ0NM73R4&loadFrom=DocumentDeeplink&ts=62.01)):

Hello and welcome to NC State's Audio Abstract. I'm your host Tracy Peak. It's Halloween and creepy tales about zombies are popular this time of year. People always talk about being prepared for the zombie apocalypse, but what if the zombies weren't people? What if the flesh eating culprit was a parasitic fly? We're speaking today with Max Scott, Professor of Entomology at NC State about the New World screwworm, what it is, what it does, and what we're doing to stop it. Welcome Max.

Max Scott ([01:37](https://www.rev.com/transcript-editor/Edit?token=i1U-yh2BU1QJ2brQylm0ykVL4jDUD48tEyqvR3ToYPe6l0kDDUT1BEe1z7FI98vNLzIWV8suaJZsvtTCRFcLD4jJETk&loadFrom=DocumentDeeplink&ts=97.26)):

Thank you, Tracy. I appreciate the invitation.

Tracy Peak ([01:39](https://www.rev.com/transcript-editor/Edit?token=dJCuxpAUCY7DuNgJdAfXDslyLwy_t__MN2VEhrWK13UV28lkslZNDkwBGgPCToRGrniObMYNc3VRrdAY8Oa8xkXAj6g&loadFrom=DocumentDeeplink&ts=99.45)):

I'm glad you're here. I read a story about the New World screwworm and it was fascinating. Let's get started by, first of all, what is this creature and what happens to animals that come into contact with it? I heard a reference to zombie deer in that story that I read, and so I definitely want to know more about that.

Max Scott ([02:00](https://www.rev.com/transcript-editor/Edit?token=am5JoxcZTq9rNEjmezIBbYMAmnrM8q-a1QdR3Px44fZQWMIBO6EzTbycm_fBG62gAZmUcFMpIukhTYg7yH6cegcilUk&loadFrom=DocumentDeeplink&ts=120.33)):

Okay. Yeah. So the New World screwworm, It's scientific name is Cochliomyia hominivorax, which the species name literally translates to man-eater. So it is a blow fly, sort of a gray blue blow fly. It's actually very similar in appearance to ones we have here around in Raleigh, but it's no longer here. It's been eradicated from Florida, from all of the United States, and through Mexico and Central America.

Tracy Peak ([02:36](https://www.rev.com/transcript-editor/Edit?token=U1CM15QzBAA9tfinYdLPFRpLUCh9xObUNdXWKqgsC3xu4Z1qFtvHLZ2K27jLL2ZijSXQIhyKLrOlkjCPV9FW01F39wQ&loadFrom=DocumentDeeplink&ts=156.78)):

Was it here for a while and if so-

Max Scott ([02:36](https://www.rev.com/transcript-editor/Edit?token=Q80-6p9kI6e-veLXnjGL5V_KrednBB7G59fq5eH8g5ev84pecqP-y31ScWIcig44ctebCl-4NF0SZBbvKw6jclJFPhU&loadFrom=DocumentDeeplink&ts=156.78)):

Yes.

Tracy Peak ([02:36](https://www.rev.com/transcript-editor/Edit?token=cxee58PaGWjQXvOYH9XnBkJJlogB6VkPXk5wDSRnRxHyqpEmFRGNE9ccH9D3Asjof-OfObakn2ujlCfSXyvH6DAopBI&loadFrom=DocumentDeeplink&ts=156.78)):

For how long?

Max Scott ([02:41](https://www.rev.com/transcript-editor/Edit?token=qdwiV4lx8KzaSIQHpn8R-ScFKIcLh4aFNWbl7QpmUmnplb588s_FAB0YC1a0WkWr64OiAttbFAbnE-1uaYvczaDKyl8&loadFrom=DocumentDeeplink&ts=161.25)):

It was a native insect that really caused a lot of problems for cattle farmers in Texas and further north of Texas in some years. It was not native to Florida, but we introduced it there when we moved livestock to Florida and then it became quite problematic there as well.

([03:01](https://www.rev.com/transcript-editor/Edit?token=tx1FlQkbfkqTAk69C044NW9qnpuWMRUzt58F9INMr9YGR2fJwLBEYJjzHlpsYWoe18kd1WzuV-9PC8x8V-ubEp9t4ko&loadFrom=DocumentDeeplink&ts=181.92)):

So this is an interesting fly for me, in that it's an obligate parasite. It is completely adapted to a parasitic lifestyle. So the female flies, they tend to live in the forest and they feed on flowers. But then when they're ready to lay eggs, they'll fly out and they look for animals. Basically any warm-blooded mammal. And what they look for is some sort of opening. It could be as small as a tick bite or a mosquito bite or a cut. The animal may have leaned up against the fence. It looks for that and then the female lays their eggs in this little slight opening and the small larvae that hatch from the eggs then start eating the animal and they feed on the animal, and when they're finally fully developed, after several days, they fall out of the animal and they pupate in the soil.

Tracy Peak ([04:05](https://www.rev.com/transcript-editor/Edit?token=b1AjXJQR_tjiIgIjuxQH1b4kKsCtBubfUhlAP8JyqJYSxLQ6a44xLGlWB6lSApznZCmtpksTiMRDLLJWeWwcgRD5YtY&loadFrom=DocumentDeeplink&ts=245.46)):

So how much damage, how uncomfortable do animals become from these infestations? How many eggs are we talking about here when the female lays them in a wound?

Max Scott ([04:17](https://www.rev.com/transcript-editor/Edit?token=ZLcJUAjGxekR8TtyzqPM75VfJJFiXNTU4Y-U8nUoucNnJL65j3jLfJ92acnrpvtmXGVgupa41DRityIM9vhWhAEBn7w&loadFrom=DocumentDeeplink&ts=257.28)):

Typically, female blow flies can lay sort of up to 200 eggs at a time, but they can lay more. What makes primary screwworm, they're also called primary screwworm. What makes it so bad, is that when the larvae start eating the animal, that somehow this sends out chemical cues that other females pick up on and they come to the animal and lay more eggs and to get more larvae going and they burrow into the flesh. That's why they get the name screwworm, and they have hooks that really hold them tied into the flesh. And they have mouth parts that are really good at pulling apart the flesh and eating into the animal. So it really does cause major distress for the animal. Once the wound gets big enough, then other flies see an opportunity. And there are sort of secondary flies, like the secondary screwworm that will come in and lay eggs.

Tracy Peak ([05:18](https://www.rev.com/transcript-editor/Edit?token=GhId0YRjR7KI3gxKi1MBvPCk0GKsdCYWeH4jzixYYgEHtk_RdLTBxIN3I3L8ohq6v-8C09EAmJp7UU894SGoiz17p3s&loadFrom=DocumentDeeplink&ts=318.69)):

Oh gosh, there's more than one, okay.

Max Scott ([05:20](https://www.rev.com/transcript-editor/Edit?token=tR1ESydr7askMNZhoGB-HKfVl753hR6jKvit-TpAJB1bHZd3zMrhYBdKBm58N_bWgV7V6n60ZcI4ZYlcppsBkb_l2N0&loadFrom=DocumentDeeplink&ts=320.67)):

Yeah. So the secondary screwworm we have here in Raleigh.

Tracy Peak ([05:24](https://www.rev.com/transcript-editor/Edit?token=kaJmTCQQ6DhgkTnr5AVJhnW291qEZYbOS_LbXEbBxZ0y5NhYzaxFG-VplRh21lSIyFoLA7iPdoJ6Q-lVMPvCsCGebDg&loadFrom=DocumentDeeplink&ts=324.33)):

Oh.

Max Scott ([05:25](https://www.rev.com/transcript-editor/Edit?token=-vwtoaAJ4ojn5Uh8nIOMLUHa2tRhnwtYB2FATL7i7m_3vHzRlKAiqfQynhohRu_iAat4w59rtlpLdUNjyK3yAtfVTCY&loadFrom=DocumentDeeplink&ts=325.02)):

It's called Cochliomyia macellaria. But on its own it's not a pest. The females don't lay eggs in living animals unless there's something like the primary screwworm has created this major wound. They're interesting. They occasionally get mentioned on programs like CSI because they're important in sort of forensic entomology, but they lay their eggs in dead animals and that's an important ecological role, breaking down dead tissue.

Tracy Peak ([05:57](https://www.rev.com/transcript-editor/Edit?token=hwD0h_C4Gh407QXJefgqZU-gSKQkaQi7S5mnCu4B65a6LVMeSE5WtzAk5LzyN-MR-D-CwQ8TRX9EGKnTexni4tG3XEI&loadFrom=DocumentDeeplink&ts=357.15)):

Right. But in the case of living tissue, it's not so great for the animals that are infected. So basically what happens is if you're a deer or a cow or some kind of animal with a scrape and the primary screwworm starts laying eggs in it, it just becomes a self-perpetuating problem forever and ever until our livestock perishing from this particular infestation? Or does it just lead to other disease that kills?

Max Scott ([06:22](https://www.rev.com/transcript-editor/Edit?token=8GZ5zwSIU1LlQSbuo55emvbp4HD0nl8WLbLqxXn8ECPYJF_9S_WA30jNUs18SVZgzKFXai4PqsbB5YyBhhZZ6p6fhzA&loadFrom=DocumentDeeplink&ts=382.02)):

Yeah, if left untreated, mortality rates are high.

Tracy Peak ([06:24](https://www.rev.com/transcript-editor/Edit?token=bfvmGkvShPqTgSRT7QL9eljwO7VN9THXU3JLO_CtcXgU_fFnu_dv2Xk5yYwHUxZiD3jyHfxiKxLmPABcWmKdy7UK_UY&loadFrom=DocumentDeeplink&ts=384.96)):

Okay. Does this screwworm infect people? Like if you were out on the farm?

Max Scott ([06:24](https://www.rev.com/transcript-editor/Edit?token=nTXwFG0OxLB33_J2mJy5iwAvnKEKhJaXywfvkkNy7c57SlxB1Kdw-nSvWq9wCI9Id5y_AeCNhSD_L-Axwa8xm8nUB_A&loadFrom=DocumentDeeplink&ts=384.96)):

Yes.

Tracy Peak ([06:30](https://www.rev.com/transcript-editor/Edit?token=Z-ESd7DpNoJHei1WYmFSg-q5UyrHE761hNCpjpD3OyfO3CS3uaobmO5DsMrunHlt6WwD2eCFC8k6Hu8beGd81FcSMHI&loadFrom=DocumentDeeplink&ts=390.45)):

Okay.

Max Scott ([06:31](https://www.rev.com/transcript-editor/Edit?token=vzw130b7cIn34ot3ubIrIaSwj0c0myygIzFsDV_hG-7VM7b8UJja4epPmWRKOcO-mczl4b8sXylc4ZGiKG5lpO2LYsU&loadFrom=DocumentDeeplink&ts=391.92)):

That's where it got its name from. It was named by Charles Coquerel. He was a 19th century French entomologist, and he correctly identified the species. He named it after a sort of unfortunate large number of cases in the French penal colony of Devil's Island.

Tracy Peak ([06:53](https://www.rev.com/transcript-editor/Edit?token=tkhF6BsrXdehaaIkOwBw9BCGAmBqxpbP-5yf-pk0ub740nTb7Zk9Vjqko4InIfq2iE1JodD1SfA6uxpo1GVKvGB4fsQ&loadFrom=DocumentDeeplink&ts=413.22)):

Oh dear.

Max Scott ([06:54](https://www.rev.com/transcript-editor/Edit?token=lZMCbK5W8VOio2gyoTi86Czln66qsOilOlxqibKHxBquaIcmwE15c4imFlJYd3M3Np8rq1b2Hvx_WaxItMezDggtH3s&loadFrom=DocumentDeeplink&ts=414.06)):

Devil's Island is off the coast of South America, where primary screwworm remains endemic in most of the South American countries. It's not in Chile, but it remains a huge problem. It's a multibillion dollar pest.

Tracy Peak ([07:08](https://www.rev.com/transcript-editor/Edit?token=toifsVUoRZTISdCkB6ewt__F8IP38xF52DfuSbL5wYncjzzUFF5DsAvzsT4Q6epv-gDewYOewCMD0b1Cw009454KnJs&loadFrom=DocumentDeeplink&ts=428.97)):

Oh goodness. Can you figure out that you've been infected before these things start eating your flesh? Or what is the primary sort of symptom, I guess? Is it creatures emerging from your skin or discomfort or what? Because it seems like they can lay those eggs in such a tiny little wound.

Max Scott ([07:28](https://www.rev.com/transcript-editor/Edit?token=Fp3BjbNXjeoVA4CuGctQQgXPB4HBVvFoVvdTWvm4HXrtcwNAavDrVe4IqhXqb9vB8OAmKJInlzTsB-wOH6OfIQrKn6w&loadFrom=DocumentDeeplink&ts=448.11)):

Yes. The larvae that hatch from the eggs are really tiny. They're maybe one millimeter.

Tracy Peak ([07:34](https://www.rev.com/transcript-editor/Edit?token=q1wTwZ8u7_NTV1TR8PCT4l5CsbvF4TgPV9oJk4hs7R2xQFAwPwmm9tMZSMjEXzkk_pcJxzD-4wr7jEBSaQ7r0WTosLA&loadFrom=DocumentDeeplink&ts=454.83)):

Oh wow, okay.

Max Scott ([07:34](https://www.rev.com/transcript-editor/Edit?token=STYe7b4AxsimlVuOayOZBEAyNMbTFg7ZmsOV94CfTXw4uRuOVQTeTtIHNYjEt7RIle4DG6Se7_hov5Muag0fEMSHcGI&loadFrom=DocumentDeeplink&ts=454.86)):

Yeah. I've not met anyone that's had a primary screwworm infestation. It's really quite rare. I've seen the photographs and I've heard the stories. Photographs are pretty bad. I have a collaborator in Uruguay because primary screwworm is really a major economic problem there. So we're working on it with them. They say they often hear about cases from dentists. So people go to the dentist complaining of what they think is a toothache, but it's actually primary screwworm that's got into the... Actually maybe getting in through the nasal cavity and it's burrowing in.

Tracy Peak ([08:21](https://www.rev.com/transcript-editor/Edit?token=TbPX8rP5rB9QvP3JvjX1F198gdgRN0Lrsg0bjVkivuyBnFwKi0QVztK79udqyBYVSJcYPOXk0wf6KmLJTFHhWGcJGJs&loadFrom=DocumentDeeplink&ts=501.81)):

Oh wow, okay. Because I was like, how in the world could you not notice a fly in your mouth laying an egg in a wound? But maybe through a nasal pit while you're sleeping or some... Well that's terrible. We've talked a little bit about how widespread it is and we've managed to pretty much push it back from the US borders, but it's still widespread over South America?

Max Scott ([08:46](https://www.rev.com/transcript-editor/Edit?token=GzKRDJP1vjO302Vukhwb71pQ-SqCrU0bois9OHukRYJxFJQi0u4HR-4DmCLzPzLPpCZqp-Ykl4b2Z0Z4VmenDeoyhjE&loadFrom=DocumentDeeplink&ts=526.77)):

It's still widespread over South America and through much of the Caribbean. So we did eradicate it from Puerto Rico, but it remains in Cuba, Dominican Republic, Haiti, Jamaica... So the fact there is still primary screwworm out there, it remains a risk to US agriculture. And the zombie deer you mentioned, so in 2016 in, I think it was September 2016. So every four years entomologists around the world gather for a Congress of Entomology. And in that year it was in Orlando, Florida and there were 7,000 entomologists there. And I think it was on the second or third day, I was with my collaborators who worked for the USDA and their phones started going off and people were sending them pictures of infested animals from the Florida Keys and wanting to know if it was caused by some other fly. But as soon as they saw the pictures, they recognized that this was primary screwworm. It had got back into the country.

Tracy Peak ([10:03](https://www.rev.com/transcript-editor/Edit?token=pttzRfbL5jXduz57CxfffLRDt8_w3U5SP2poFy5JnkSLW_B6OWIIFs_c7__QckNli942UGHBKSFugy60ZHs_tAPpzGo&loadFrom=DocumentDeeplink&ts=603.03)):

It was very fortunate that it just happened to be the world's largest gathering of entomologists there at the time.

Max Scott ([10:08](https://www.rev.com/transcript-editor/Edit?token=xzQ8BUBkVvU9gJcCkhntCyC1VyGkYVDjx1N3Zhj6Owm6rwlT6gZrYB_QcgJJiy1NmlIrqBVYB5901_HDKKduUKb4ivI&loadFrom=DocumentDeeplink&ts=608.52)):

Yes. They immediately left the meeting and made preparations and went down to the Keys. They were really shocked to find how large the population had become. Probably been there for a few months. The residents had noticed deer wandering around the streets, they called them zombie deer because they seemed to be wandering aimlessly. What had happened was, because I think it was during the rut and the males had wounds around their antlers. So the primary screwworm had laid their eggs there and larvae proceeded to sort of eat the flesh around the antlers. The photos are pretty bad.

Tracy Peak ([10:47](https://www.rev.com/transcript-editor/Edit?token=9iWv9m9iRVdeZ5VNOsSIgjWEwho5NxPkUH6TSnyCn7JeqtuJstMrsMpF0obMKL2RuSNEsrPEtwyuzgW4sSBzwbxqwls&loadFrom=DocumentDeeplink&ts=647.55)):

Pretty bad. Yeah I imagine. But they didn't eat the brains of the animals, right?

Max Scott ([10:52](https://www.rev.com/transcript-editor/Edit?token=QEo-a0VaUUIbSzSNVOIt7qW-2ifyWPUW6J0Zaqw1JllDnp07eQkH4uqKTHjh1ocisWIU5q2VknBp5U3-lGQetGYKEFA&loadFrom=DocumentDeeplink&ts=652.2)):

Did they burrow into the brains? I can't remember.

Tracy Peak ([10:55](https://www.rev.com/transcript-editor/Edit?token=Bv-Did3wmWPsVEFRqyID03Kk-kV5HK5kyVY-Zx2F7jbqethHkJjqPaR5z1mYO_DIeR1lt9LUaHF3GHDTlWyZoY4_UmM&loadFrom=DocumentDeeplink&ts=655.05)):

Okay. That's terrible.

Max Scott ([10:58](https://www.rev.com/transcript-editor/Edit?token=frl_HatzvN3qOE3J_GGdwBIJJUuH1LhrJWbNLcw_jqDYexkJTQhjFM1iMWknkFDnYXnE5TEReSY-pHwMHYMlh1ACwm0&loadFrom=DocumentDeeplink&ts=658.11)):

But so many of the animals had to be euthanized and those Florida Key deer, they're a protected species.

Tracy Peak ([11:04](https://www.rev.com/transcript-editor/Edit?token=Ey6OI9mk9Dks6dQcftWYvSesTVjSlN4GloPcq05HBwqF5gJF6JLXajPeHQ6ndiqt4udNuCwP2OLHfAMWLc6BVSQtLSk&loadFrom=DocumentDeeplink&ts=664.62)):

Yeah, that's terrible. Specifically we talked about how we eradicated it and then again, I guess it keeps trying to come back here?

Max Scott ([11:13](https://www.rev.com/transcript-editor/Edit?token=LSFMces830GM9tGHyA62sjn4epa7ImYRWVKs58aG49WaNjQp3kQS2Bkrl7hkD9xxxfy7g4TOXMi9oPPHplNJ49cIVbo&loadFrom=DocumentDeeplink&ts=673.53)):

It remains a risk.

Tracy Peak ([11:14](https://www.rev.com/transcript-editor/Edit?token=3WBiwMEfrJs5tJqzosZRm_P2rhhOKa_u9hnzWpO7omRUAv9vT8TTKCx3ABTLny2v_N2tadcJld43lTpdvCt-7jEvIRA&loadFrom=DocumentDeeplink&ts=674.07)):

Right. So what exactly did we do? What are the methods that we're using to get rid of this thing?

Max Scott ([11:23](https://www.rev.com/transcript-editor/Edit?token=anzM-5Z_VJRdFhpH_uAEp76TzJYEqwVkz2dPqorwz9Ma7GZpbfaT9sTShxTYQDnss1WEVC2r-RNuJJELwQYhPKL6VcY&loadFrom=DocumentDeeplink&ts=683.34)):

The eradication of screwworm is the first and really the classic example of using genetics to control an insect. It's what I teach in the class I'm teaching at the moment for entomology graduate students. The key breakthrough was in the 1930s when Cushing and Patton realized that what had been commonly thought of as Cochliomyia hominivorax was two species. The adults of Cochliomyia macellaria and hominivorax looked very similar. And once they realized that these were distinct, then it became apparent that the pest hominivorax was present in actually quite low densities. The secondary screwworm is much more common, much more abundant, but it's not the pest.

([12:11](https://www.rev.com/transcript-editor/Edit?token=7SZwHqlprINYyrgh2mCI2PArLkhjDQ1g9783CCad1hQPp0a92x6f_svZPi0AbBuPyDEinLmOO_MUaqUG26F4CYP39XE&loadFrom=DocumentDeeplink&ts=731.79)):

A fellow called Knipling, Eric Knipling, started thinking about how perhaps he could eradicate this fly by releasing sterile flies. He did some calculations and he thought if I could release a ratio of 10 to one sterile flies to fertile flies, but most of the time the females out there in the farm are going to mate with a sterile fly and they only mate once in the field. So if she mates with a sterile male, it won't produce any offspring. They tried this technique out in the early 1950s on the island of Curaçao in the Caribbean, and it was really very successful. Then it was tested in Florida and within two years the screwworm had been eradicated completely from Florida, saving producers millions of dollars

Tracy Peak ([13:04](https://www.rev.com/transcript-editor/Edit?token=aeTKB43EaGQZ5gHH2PG10SQuLT9CrxhC5Z3JM-BU7oKPHbmtQILMHWn59_S9KCpT4rVuLqCLsFufFIJ7o46dZxCijBo&loadFrom=DocumentDeeplink&ts=784.23)):

Wow, and a lot of suffering too. So that's great.

Max Scott ([13:07](https://www.rev.com/transcript-editor/Edit?token=vc0GIuDh8pTHaWLaZYHmeQu0JEChSIs9yCvJdzxyQcx1Kz2K7Ojtl_EF-Gl0zlpyK1F4EqHLt76iwfxEgU-pWRx1uC8&loadFrom=DocumentDeeplink&ts=787.14)):

Yeah. The program was then extended releasing sterile flies throughout Texas, then eventually Mexico and Central America to where we are today where there was a factory in Panama, not far from the international airport that rears somewhere in the order of 10 to 15 million flies per week. They're radiation sterilized, loaded onto planes and flown along the Colombia-Panama border every day.

Tracy Peak ([13:38](https://www.rev.com/transcript-editor/Edit?token=fAVgsN9X-jUes-Er9ioh9MLvYSqp5-F6c-pMd8i0OEfFKzgECwitj3UZNnX-Ar9z6ofB_SaS6mbOT7c7himdk2dTCik&loadFrom=DocumentDeeplink&ts=818.16)):

Okay, that's amazing for a number of reasons. First of all, there's a fly producing factory in Panama.

Max Scott ([13:44](https://www.rev.com/transcript-editor/Edit?token=uCPjqUgc5XSbA525LKqU9wAXR8c9dew-nd0nFsqWqlVjuc-rpwuAmA1QLbuXB69RaWtZNKlP-AE0IkFSxEXRRW3IDko&loadFrom=DocumentDeeplink&ts=824.7)):

Yes.

Tracy Peak ([13:45](https://www.rev.com/transcript-editor/Edit?token=GpOKMuso0IsPGt5hgHefU4Z0FsqCgB2PHgnBBneLR3O2Sl7UgpkgUjL-eEfD3jC_0N6TUhfv1ZrrdSRZj0y1X2sj2eQ&loadFrom=DocumentDeeplink&ts=825.24)):

And then you're essentially just raising these creatures the way they would normally be raised and then you just radiate them to render them sterile and then you can release them. Okay, so how are laboratory grown screwworms made? Do you just put them on raw meat and let them do their thing?

Max Scott ([14:04](https://www.rev.com/transcript-editor/Edit?token=JZaysKM-0_-i55tiExdGmYxd72hIHIS0vwM5N0S6MJkkDEB4PCeHTOJ5KlOzy1Ep1ADQsUebYwC9FmSt_H88ZZ32R4c&loadFrom=DocumentDeeplink&ts=844.44)):

Well that was the USDA scientists that really figured out a diet that would work, because like you say, this is an obligate parasite. It's used to eating the flesh of a living animal.

Tracy Peak ([14:14](https://www.rev.com/transcript-editor/Edit?token=ubyi5nfonvbglkGVcxNLH8tRbEPwC6ilCulBc6YA4k59ffdiKmCKalFfjaSt0rG9FZuQRNh8ofzGng5VTmyAJDdc7E8&loadFrom=DocumentDeeplink&ts=854.01)):

Right.

Max Scott ([14:15](https://www.rev.com/transcript-editor/Edit?token=nQspXMk1WsnepE8dGRKj6u-7skJUpSM3kos7fpYC5LJBxAryIzEroH6dfu4GNTRm90RFtd661NZXe1I1M-YtSxGmw4E&loadFrom=DocumentDeeplink&ts=855)):

But they did figure out a diet that could be used to rear them artificially.

Tracy Peak ([14:18](https://www.rev.com/transcript-editor/Edit?token=ZhN_X9CnDM14CPr3YRxnqIWKhWGUGAeeJpw03VoC24L20h2HqvIoYw4kSVE7ICQ8tC0QBgzRkttY27TTT-Sc0wKU-FI&loadFrom=DocumentDeeplink&ts=858.63)):

That's amazing. What are the barriers to using this to wipe them from the face of the earth entirely? Is it just time, money, and resources, the usual things? Are we making progress?

Max Scott ([14:35](https://www.rev.com/transcript-editor/Edit?token=Z7PGR_bQG01Lnh1IbfbePnN3n0S-u9dVP6bVJqIqsCx-VPs7m0OrNO5d_jwZfgxUaEOhhHMPLRlqJTp6v3eMvlRoXEw&loadFrom=DocumentDeeplink&ts=875.58)):

Yeah, the cost. If you look at a map of the world as they're eradicating from Texas through Mexico, through Central America to Panama, the geography was in their favor.

Tracy Peak ([14:45](https://www.rev.com/transcript-editor/Edit?token=7Fvt3VdVgVHwNtbQxlzfTO8HiDhkGqgGqv9vkGHRh-7r_Y0RqCE7rTANU33FjFA6ALbMaMmmZzFGstIIGjCiHTX_bMo&loadFrom=DocumentDeeplink&ts=885.81)):

Right.

Max Scott ([14:46](https://www.rev.com/transcript-editor/Edit?token=5oXOt3wGzkCoaDHVbzbUWMi14eLNHJe1jmxFlD309oG8aD7ES820Pp-Ldm5wQOCHt34BGlTl_ZDltZKwXdM6zJZElkU&loadFrom=DocumentDeeplink&ts=886.08)):

And this took 50 years.

Tracy Peak ([14:48](https://www.rev.com/transcript-editor/Edit?token=oYg5JUrbmHmx9VSMHtJvzA_GAmQEa7iMhiT2NrpQe1o90WcuVhniRW9jXcFA29QX56uY-VgP2yD1TVWOhKk7wVQtg_8&loadFrom=DocumentDeeplink&ts=888)):

Okay.

Max Scott ([14:49](https://www.rev.com/transcript-editor/Edit?token=fRoeVkLwVMVfIdWlrRQ_u-20_HIkUOaIkrrKCYEp7J6JmMrBtgsmda0bd0PNfhjBKlnf39aJZwl24aKGmAB5wMIgZWo&loadFrom=DocumentDeeplink&ts=889.29)):

So now we're at Panama, at a very sort of narrow stretch of land. So it's easy to maintain a border along there and protect all of Central America and Mexico and the US from the fly coming back.

Tracy Peak ([15:03](https://www.rev.com/transcript-editor/Edit?token=aTHTXivzyH8eMRe7RGMbAd0EcyqQeA6geAIisTrskMYaHS3Wib8ac_NeS-IhtZIQgSOJOFn0Y9xDX2q8I5Z80oxhghA&loadFrom=DocumentDeeplink&ts=903.66)):

Well that's good news for us and hopefully we can help some other countries out too, where it's still endemic.

Max Scott ([15:10](https://www.rev.com/transcript-editor/Edit?token=4b7DDB0czCfs1OZU5T8Bs7zUvSOvbZnqGI4p_hvlUl08Tv1N1eosALXfjUU9V5UI-LmefEVmXRf3ZZzVt55E7kQqKJo&loadFrom=DocumentDeeplink&ts=910.5)):

We're looking at other approaches to try to make the genetic suppression more efficient to lower the cost. So that's stopping... It really would be incredibly expensive to try to eradicate screwworm from South America using sterile insect technique.

Tracy Peak ([15:26](https://www.rev.com/transcript-editor/Edit?token=vhRhWTsh7n9ciAiK0_nSkYVOzr8-po1CAwQxiWLRlZlu7K7PI1jOJ72a_indWZMvleo3irjVbA3Sl5OVMZaSPhy4J2s&loadFrom=DocumentDeeplink&ts=926.67)):

Yeah because South America is huge and those flies are very small apparently. I had no idea how small. Especially the little larvae, like a millimeter. Good grief.

Max Scott ([15:38](https://www.rev.com/transcript-editor/Edit?token=CEx3uv0zCYE03eGrSvoCw3FSooH0mQZsBgiEGGtgpmS4nmm2BQ-o0ZBf1ELzaxy0FdI3Aia3Nku-Tv9D1BctUT1i7N8&loadFrom=DocumentDeeplink&ts=938.34)):

They grow pretty rapidly though. By the time they're ready to fall out of the animal, they're about 17 millimeters long.

Tracy Peak ([15:46](https://www.rev.com/transcript-editor/Edit?token=4cxJuMJ2fJYGyJPSjacJMiDbhL-Y22TFdAkDf8PJypA47voA8NVBB273V7HPDdWgQDaB1gh96Hd_Le06JDQZqZPi3vU&loadFrom=DocumentDeeplink&ts=946.02)):

Alright, so that's a centimeter and a half about or so.

Max Scott ([15:46](https://www.rev.com/transcript-editor/Edit?token=L5haRseVj9_C26zSkLXSKBPnurdnvZrOqgQGHLzvJiuyoRDq0qTyKOUO0m7GKFXpP7YLpGAJ2ZsuGejUSEihhNfjdEc&loadFrom=DocumentDeeplink&ts=946.02)):

Yeah.

Tracy Peak ([15:49](https://www.rev.com/transcript-editor/Edit?token=kaYUYgNhLAVbI3dqi8OpcoajZF1NFvrOtW-vAvJpHxQSK9felXnwYDgRjKaEn1BGUCSyKdCCtqTa57378_mw-ioYbuU&loadFrom=DocumentDeeplink&ts=949.05)):

Okay. That's noticeable.

Max Scott ([15:51](https://www.rev.com/transcript-editor/Edit?token=FJvbwt04SY0uyVmoOoE2_x6qpUkjG2JLdkwGUG6KXp-NqyadcMR7b1B4bdVY7H2qvhTub5QNB7-gQ6sixjAfUMSj_QA&loadFrom=DocumentDeeplink&ts=951.45)):

Oh yeah.

Tracy Peak ([15:51](https://www.rev.com/transcript-editor/Edit?token=lBWTJlUTHtjamLE6vgdvyOBsGDzkEKi3w9uRLh6jhjLWiSP1ly9BfRAKpFKnA6MZGJYL7n5jMUjxwtia2bFh_Oe3zJU&loadFrom=DocumentDeeplink&ts=951.75)):

That you would have worms falling out of your body. That's awful. But finally-

Max Scott ([15:56](https://www.rev.com/transcript-editor/Edit?token=LheKuGFmE4KcFCUl6WttT9M7daUZHritt_MhqXZMLx00PoN92N6QbH_0W3yhUPuOIoshp0KmHeyPLqbXFdwSYKDOmcM&loadFrom=DocumentDeeplink&ts=956.91)):

You've had your lunch I take it.

Tracy Peak ([15:58](https://www.rev.com/transcript-editor/Edit?token=GENzXGbqyj64nyoCfIj7R8cqNoOP1HhRnH0IQiG4pCLtewtv9S7CWMUz-VKJNI9U1i6qT2dX1jgFLbieGOpc3R0MA2M&loadFrom=DocumentDeeplink&ts=958.74)):

I have not yet, but I will be putting that off now for a while. Which brings me to my final question, and I always ask this of researchers, mainly because it's interesting and fun for me. What is the coolest or grossest or most interesting thing you've discovered while studying either the primary screwworm, the secondary, or any of these kinds of creatures? What's like your favorite fact?

Max Scott ([16:25](https://www.rev.com/transcript-editor/Edit?token=73CN-dF5WcbYi4mOERA8WBmjZyXDL4F0X9L7jNCRGqPY9fTxL2-1Xu883dKohR5D-DIUBmSbaSQzJ8C6TRs_t-igerQ&loadFrom=DocumentDeeplink&ts=985.74)):

I have probably several. There was one story that was in the newspaper a couple years ago about an American family that went on holiday in Bolivia, and while they were waiting for the plane, one of the children was saying that her head was a bit itchy.

Tracy Peak ([16:57](https://www.rev.com/transcript-editor/Edit?token=G-1wHPOcPmgkou6ZY0Eo6LnvBWS1Sv5WFy0wlrVbbz7G4O6FCymeD8tsHx5blUMYZZgu2fi7UNdRbvD-kLt-uTkipUU&loadFrom=DocumentDeeplink&ts=1017.63)):

Oh dear.

Max Scott ([16:58](https://www.rev.com/transcript-editor/Edit?token=dAlSP4SURQ-g5GlICArcAP6LlfM_lU8iIChUA4yPQjbIyzxvISJCaL9vv1Bu7oAM8davm8k5FBti7xXvkUvZLE8Ofr4&loadFrom=DocumentDeeplink&ts=1018.5)):

And because it's a long trip from Bolivia to where they were I think was Minnesota or something like that.

Tracy Peak ([17:04](https://www.rev.com/transcript-editor/Edit?token=3AMlARmn-tro9kHjPfEiILoQdaTkT-HJbPYsPzi3415epUaI0JGPxx9Kdw6VNq1vEY6wPuw6v0S03Oot-DaWtQS2uNA&loadFrom=DocumentDeeplink&ts=1024.92)):

Oh wow.

Max Scott ([17:05](https://www.rev.com/transcript-editor/Edit?token=XjwKiGih91KWl_slAYPZaDR8fhF0-1GiVSRNNQckWsKNymw9hhr2ihREEEvwtzlWd2QnJ3j2l3ovICoZyoo7Ise0Kjk&loadFrom=DocumentDeeplink&ts=1025.91)):

And by the time they got there, the girl was in a lot of pain as the screwworm were starting to eat into the flesh.

Tracy Peak ([17:12](https://www.rev.com/transcript-editor/Edit?token=xfPs6X_QkBRWVt9Oeuxi5vPFP5BCrrcqryghLnwonHTgRaOlsR9yQa0djTHb8Q5isYB_UWIILPi9lWl4NtvFD9RiQnM&loadFrom=DocumentDeeplink&ts=1032.99)):

Oh gosh. Yeah, that's a problem.

Max Scott ([17:22](https://www.rev.com/transcript-editor/Edit?token=TS_fuajOY6nWQSM_4v93KLx_lXgJhb4xPEdwsdLKeqOhrGepDEiW-OdRntUooNQOwYv15_SblH_HTjUHcGVcr_SS8Dc&loadFrom=DocumentDeeplink&ts=1042.92)):

She had to be treated pretty quickly.

Tracy Peak ([17:24](https://www.rev.com/transcript-editor/Edit?token=janv-6dv4XS8nc_BJl04JDBgrGfJjch2N8Q2Nl2canGiWCkVZJlRq5cMwFnGlD4Wp32Rs2bZne3NceGP0irBAQJ1-2w&loadFrom=DocumentDeeplink&ts=1044.66)):

Okay.

Max Scott ([17:25](https://www.rev.com/transcript-editor/Edit?token=koz2srgYapFOorbC_OTM5nbStpXm3tjuEksZR7fMsyn2SZcw4ObsWvlXxR6F6PMOwoKFmiNw0z_DMhGLd-5mP5Ox3-k&loadFrom=DocumentDeeplink&ts=1045.95)):

But that were still small at that point.

Tracy Peak ([17:28](https://www.rev.com/transcript-editor/Edit?token=iyAml2nb20VFaaNuk1o_wMz93UTatZySs87RFr8ISHaJZn1GEPioVERM8B9SZUQookY4EGmpYwoWGs4krRya0GwyFis&loadFrom=DocumentDeeplink&ts=1048.23)):

Right.

Max Scott ([17:59](https://www.rev.com/transcript-editor/Edit?token=KiuhO8C0SPBu0aj3VL_WEoi51MGwY_XL_LKwDkVewAGBHMmt1QVEkZE419e84hzYM5DW4earePxOdzXwhPktdIIOZ64&loadFrom=DocumentDeeplink&ts=1079.13)):

In terms of interest for me... So screwworm's not alone. There is a lot of blowflies, not a lot, but there's probably about 800 or so species of blowflies, and blowflies seem to have this ability to evolve rapidly from what they normally do, which is lay their eggs in dead animals to becoming a parasite.

([18:24](https://www.rev.com/transcript-editor/Edit?token=QbZb2_Yl5pglTbreX00qh1qOHL7l2vdVEMa1lPr1Wv3yyKSzilal8S9u6tDMZQgiVStdWRXQ6MIsXq-fe2PVdlzZaPQ&loadFrom=DocumentDeeplink&ts=1104.93)):

So there's the New World screwworm, but it's closest relative secondary screwworm is not a parasite. If you go to Asia, there's the Old World screwworm. It's also a blow fly, but it's not closely related. And its closest relative is not a parasite. So they have this ability to quickly evolve this parasitic lifestyle. And to do that, they've got to be able to live at the body temperature of a cow, which is pretty warm for an insect and deal within an animalian immune system. So from a science point of view, I'm sort of interested how this rapid evolution of parasitism occurs in blow flies, and we're part of an NSF funded project with researchers in Brazil and other researchers that NC State to look at this taking sort of a genomics and using CRISPR approach.

Tracy Peak ([19:12](https://www.rev.com/transcript-editor/Edit?token=EJWfbF5zXKQrFPRy6kBV40ozoy_WPuH7sCDmuWcleQVnIcFHjZAxOO7noQA-z8-BkqL0_aYZBypug-qFNoJQlWXKwRc&loadFrom=DocumentDeeplink&ts=1152.81)):

Yeah, I suppose we don't want the secondary screwworm to suddenly turn into kind of a primary screwworm as well. We don't need more of these animals figuring out how to become a parasite. That would be awful. Well thank you so much for being here today Max. This has been fascinating and gross at the same time, so I think it's time well spent.

We've been speaking today with Max Scott, Professor of Entomology at NC State. This has been Audio Abstract. I'm your host Tracy Peak. Thank you so much for listening.