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YOU HAVE MORE AT SO MANY TIMES  
OF THE YEAR THAN OTHERS OR OTHER  
FACTORS BUT AGAIN TO GIVE US A  
SENSE OF HOW MANY PEOPLE ARE  
RELYING ON VOLUNTEERS.

I THINK IT WILL BE HELPFUL FOR  
DONIA TOO BECAUSE NEXT WEEK  
SHE'LL TALKING ABOUT WORKING  
WITH STAFF AND VOLUNTEERS  
REGARDING COLLECTION'S CARE AND  
I THINK IT WILL BE HELPFUL TO  
KNOW HOW MANY ARE RELYING ON  
VOLUNTEER HELP AT YOUR  
INSTITUTIONS.

AND WE'RE ALMOST AT 300 AGAIN,  
GUYS.

WE'RE AT 276.

NICE DIVERSE TY.

WE HAVE HAWAII AND ALASKA ON AND  
EVERYONE IN BETWEEN.

MARYLAND, IOWA, FLORIDA, UTAH  
I'VE SEEN SO WELCOME EVERYONE.

OKAY.

I THINK GOING TO CLOSE THE POLLS  
BUT THANKS AGAIN FOR  
PARTICIPATING AND TURN IT OVER  
TO OUR EXPERT, DONIA WHO IS I  
THINK YOU CAN AGREE A VERY GOOD  
PRESENTER IN WEBINARS.

THAT'S NOT AN EASY SKILL.

SHE DOES A LOT OF TEACHING AND  
PRESERVATION CONSULTING AND  
WE'RE SO HAPPY TO HAVE HER.

SO DONIA I'LL PULL UP YOUR POWER  
POINT AND TURN IT OVER TO YOU.

>> ALL RIGHT.

THANK YOU, KRISTEN.

GREAT POLL QUESTIONS THIS  
MORNING IS GOING TO HELP ME OUT  
WITH NEXT WEEK'S WEBINAR ON  
STAFF AND VOLUNTEER MANAGEMENT  
BUT TODAY WE'RE GOING TO TALK

ABOUT PEST MANAGEMENT AND THOSE OF YOU OUT THERE WHO ARE ACTUALLY MANAGING STAFF AND VOLUNTEERS MIGHT THINK WE ARE TALKING ABOUT STAFF AND VOLUNTEER MANAGEMENT BECAUSE SOMETIMES THEY CAN BE PESTS. ESPECIALLY IF YOU'VE MANAGED STUDENT STAFF THOSE OF YOU IN ACADEMIC LIBRARIES PROBABLY HAVE HAD THE SAME EXPERIENCES I'VE HAD.

EVERY ONCE IN A WHILE YOU GET A MESS.

BUT TODAY WE'RE REALLY GOING TO BE TALKING ABOUT NOT THE TWO-LEGGED VARIETY, WELL, SOME CAN BE TWO-LEGGED BUT PREDOMINANTLY THE FOUR-LEGGED TO SIX-LEGGED ETCETERA.

FAIR WARNING, IF YOU TEND TO BE A LITTLE BIT SQUEAMISH ABOUT BUGS THERE ARE GOING TO BE A LOT OF PICTURES OF BUGS SO YOU MIGHT WANT TO TAKE YOUR GLASSES OFF, SIT FAR AWAY FROM THE COMPUTER AND JUST LISTEN.

BUT THERE ARE GOING TO BE A LOT OF PICTURES.

SO WHAT WE'RE GOING TO TALK ABOUT TODAY REALLY IS WE'RE GOING GO OVER THE PRIMARY TYPES OF PESTS THAT WE CAN EXPECT TO FIND IN OUR INSTITUTIONS.

WE'RE GOING TO TALK ABOUT INTERGRATED PEST MANAGEMENT.

A BIT ABOUT MONITORING FOR PESTS AND THEN FINALLY WHAT WE DO WHEN WE FIND THOSE LITTLE BUGGERS.

SO THAT'S REALLY WHAT WE'RE GOING TO COVER TODAY.

HOPEFULLY NONE OF YOU -- YOU CAN SEE FROM THE IMAGE IN THIS SLIDE, HOPEFULLY NONE OF YOU HAVE HOMEMADE ICE CREAM SANDWICHES FOR SALE IN THE MIDDLE OF YOUR LIBRARY OR MUSEUM

BECAUSE YOU PROBABLY THEN DO  
HAVE A HISTORY OF PEST PROBLEMS.  
SO WHEN YOU'RE THINKING ABOUT  
PEST MANAGEMENT ASK YOURSELVES  
SOME OF THESE QUESTIONS.

DO WE HAVE A HISTORY?

ARE THERE THINGS TO BASICALLY  
GIVE YOU AN IDEA OF WHAT YOU  
COULD BE LOOKING AT IN TERMS OF  
PROBLEMS.

DO YOU HAVE POLICY FOR FOOD AND  
DRINK.

ARE THEY JUST FOR STAFF OR  
EVERYBODY?

DO YOU LET THEM SLIDE FOR  
SPECIAL EVENTS?

AND WHO'S RESPONSIBLE FOR  
IMPLEMENTING THEM?

WHO'S RESPONSIBLE FOR POLICING  
THEM AND MAKING SURE THEY ARE  
BEING FOLLOWED?

IF YOU DO ALLOW FOOD AND DRINK  
DO YOU ALLOW IT IN SPECIFIC  
AREAS?

THAT'S ANOTHER QUESTION TO ASK  
YOURSELF AND THEN IF YOU DO IN  
JUST SPECIFIC AREAS DO YOU  
MONITOR IN THOSE AREAS.

HOW IS YOUR FOOD WASTE DISPOSED  
OF?

IS THE GARBAGE EMPTIED EVERY  
DAY.

DO PEOPLE TAKE CARE OF AT THEIR  
DESKS TO MAKE SURE THERE ISN'T A  
LOT OF CRUMBS AND THEN DO YOU  
HAVE A REGULAR EXTERMINATOR?

DO THEY COME AND SET OUT STICKY  
TRAPS OR PUT MOUSE TRAPS OR DO  
REGULAR SPRAYING FOR TERMITES?

DO YOU HAVE SOMEBODY LIKE THAT  
AND IF YOU DON'T KNOW FIND OUT.

IT'S REALLY IMPORTANT TO HAVE A  
GOOD IDEA ON ABOUT WHAT IS  
ACTUALLY BEING PERFORMED  
ESPECIALLY IF PESTICIDES ARE  
INVOLVED.

YOU REALLY WANT TO HAVE A GOOD

HANDLE ON THAT AND WE'LL TALK ABOUT THAT AND WHY THROUGHOUT THE SESSION TODAY.

SO THERE ARE SEVERAL TYPED OF COMMON PEST HAS IT WE WILL HAVE TO DEAL WITH.

SOME OF THESE WILL BE NORTHERN PESTS, SOME SOUTHERN AND SOME TROPICAL AND FOR THOSE JOINING US FROM OUTSIDE THE U.S. , I'M SORRY.

I'M NOT UP ON MY INTERNATIONALS BUT EVEN IF THESE AREN'T EXACTLY WHAT YOU HAVE YOU PROBABLY HAVE ONES THAT ARE VERY SIMILAR.

SO WE'RE GOING TALK ABOUT ALL THESE DIFFERENT TYPES OF CRITTERS TODAY.

LET'S GET STARTED.

SILVERFISH AND FIREBRATS ARE THE MOST COMMON PESTS WE'LL FIND IN OUR COLLECTION.

THEY'RE SMALL AND LONG AND KIND OF TORPEDO SHAPED IF YOU THINK ABOUT IT.

DEPENDING ON WHICH ONES THEY ARE THEY CAN BE SILVERY IN COLOR FOR STRANGELY ENOUGH SILVERFISH OR A PALE BROWN COLOR FOR THE FIREBRATS.

THEY ARE GENERALLY FOUND IN WARM, DAMP, DARK AREA.

WARM BEING A RELATIVE TERM HERE BECAUSE THEY'RE USUALLY FOUND IN BASEMENTS BUT IT'S OFTEN TIMES WARMER THAN OTHER PLACES BUT PREDOMINANTLY DAMP AND DARK.

BOTH OF THESE GUYS FEED ON BOOKS AND PAPER AND THE BINDINGS AND TEXTILES AND WALL PAPER PASTE.

ANY STARCHES AND IF YOU REMEMBER THE STARCH LINEN DRAWING IF YOU REMEMBER THAT THAT WAS SILVERFISH DAMAGE.

THEY LOVE THOSE PASTES.

THEIR PREFERRED HOUSING IS

CORRUGATED CARDBOARD.

SO SILVERFISH WILL BE VIRTUALLY INVISIBLE TO YOU BECAUSE WHAT THEY'RE DOING IS THEY'RE LIVING IN THOSE OPEN COLUMNS IN YOUR CORRUGATED CARDBOARD AND SO WHEN WE GET TO THE POINT OF TALKING ABOUT INTERGRATIVE PEST MANAGEMENT ONE THING WE'LL BE TALKING ABOUT IS ISOLATION WHEN YOU GET IN NEW QUESTIONS SO YOU'LL WANT TO BE THINKING ABOUT THESE LITTLE GUYS LIVING IN THE BOXES.

SO THEY CAN BE VERY PROBLEMATIC. THEY REPRODUCE QUICKLY AND EAT A LOT.

BOOK LICE OR PSOCIDS ARE ANOTHER PEST WE FIND PREDOMINANTLY IN LIBRARIES AND ARCHIVES.

LESS SO IN MUSEUMS BUT YOU PROBABLY HAVE THEM THERE TOO. THEY'RE NOT ACTUALLY EATING THE MICROSCOPIC MOLD ON THE STARCHY OR PROTEIN BASED MATERIALS.

THE GLUE, BOOK BINDINGS, PLASTER.

YOU CAN FIND THEM ON JUST ABOUT ANYTHING BECAUSE THEY WANT THE MOLD.

THEY'RE VERY VERY TINY AND TRANSLUCENT AND THEY MOVE VERY QUICKLY.

SO YOU'LL NOTICE THEM IN THE SUMMER, STRANGELY ENOUGH, BECAUSE THE HIGHLY RELATIVE HUMIDITY ENCOURAGING THE MOLD GROWTH WHICH WE'LL FIND OUT TOMORROW BUT WHEN YOU OPEN A BOOK YOU'LL SEE THESE LITTLE GUYS SCURRY AWAY FROM THE BINDINGS.

WHAT THEY'RE TELLING YOU IS YOUR RELATIVE HUMIDITY IS STARTING TO GET TO THE POINT WHERE MOLD REALLY COULD BE A PROBLEM.

AND SO THEY'RE A WELLWEATHER FOR

YOU IN TERMS OF YOUR STORAGE ENVIRONMENT.

YOU'LL SEE THEM ONLY WHEN THE RELATIVE HUMIDITY IS HIGH. THEY NEED IT FOR THEIR FOOD, THEY NEED IT TO BREATHE AND SURVIVE THIS IS WHY WE GENERALLY DON'T SEE THEM IN THE WINTER UNLESS YOU LIVE SOME WHERE MORE TROPICAL AND THE BOOK LICE GO DOWN THERE FOR TO THE WINTER TOO.

WE SEND THEM DOWN THERE. COCKROACHES AND I APOLOGIZE BECAUSE EVERY TIME I SEE THESE PICTURES THE COCKROACHES GIVE ME THE WILLIES BUT THAT'S FROM LIVING IN TEXAS AND HAVING THE BIG MONSTER COCKROACHES THAT COULD CARRY YOU AWAY. THEY'LL EAT YOUR BOOK CLOTH, THEY'LL EAT PAPER, THEY'LL EAT LEATHER.

WHAT THEY REALLY, REALLY WANT THERE ARE ESSENTIALLY THE ANIMAL GLUES OR STARCH PASTE HOLDING THESE THINGS TOGETHER. THEY'RE HOLDING THEM DOWN. SO YOU REALLY WANT TO THINK ABOUT WHERE YOU'RE STORING THINGS AND DOING IN TERMS OF MONITORING BECAUSE THESE GUYS LIKE THE SILVER FISH AND THE FIREBRATS LOVE TO LIVE IN THE CORRUGATED CARDBOARD.

.  
AND SO YOU REALLY WANT TO USE CAUTION.

NOW WHAT I'M KIND OF SHOWING YOU IS THE ONE ON THE BOTTOM RIGHT IS AN AMERICAN COCKROACH ALSO KNOWN LOVINGLY AS THE PALMETTO BUG.

IT'S STILL A COCKROACH. DON'T LET THEM FOOL YOU.

THE ONE ON TOP IS A GERMAN COCKROACH -- NO, THAT'S A BROWN

COCKROACH AND THE GERMAN  
COCKROACHES ARE THE LITTLE BLACK  
ONES THAT MANY OF US SEE.  
SO WE WANT TO THINK ABOUT THAT.  
THE PROBLEM WITH COCKROACHES IS  
THEY REPRODUCE VERY VERY  
QUICKLY.  
SO WE REALLY WANT TO BE AWARE,  
WATCH THIS AND NIP THESE GUYS IN  
THE BUD.

.  
IN TERMS OF RELATIVE HUMIDITY  
FOR THE PSOCIDS PROBABLY  
STARTING AT AROUND 55 TO 60 IS  
WHEN YOU'LL START TO SEE THEM.  
IT WILL BE OVER 60% RELATIVE  
HUMIDITY THAT YOU'LL REALLY  
START TO SEE THEM COMING IN  
FORCE.

USUALLY AROUND 70% RELATIVE  
HUMIDITY IS WHEN THEY BECOME A  
PROBLEM.

MOLD, MILDEW, BUGS, EGGS,  
DEFINITELY CAN SURVIVE IN  
TEMPERATURES BELOW 70 DEGREES  
FAHRENHEIT.

THAT'S JUST WISHFUL THINKING.  
THERE ARE TEMPERATURES RANGES  
THEY WON'T SURVIVE AND WE'LL  
TALK ABOUT THAT LATER ON IN THE  
SESSION.

THE BELOW 70 YOU HAVE TO GO  
CONSIDERABLY BELOW 70 TO START  
TO HAVE AN IMPACT.

WE'LL GET TO TALKING ABOUT THAT.  
SORE TRY TO BURST YOUR BUBBLE.

.  
COCKROACHES DO REPRODUCE  
RAPIDLY.

A SINGLE FEMALE IN A SINGLE YEAR  
CAN PRODUCE OVER 1,000 OFFSPRING  
AND COCKROACHES ONCE THEY'VE  
HATCHED AND GROWN TO MATURITY  
CAN REPRODUCE IN ABOUT 15 DAYS  
OF HITTING MATURITY AND SO YOU  
CAN HAVE MULTIPLE, MULTIPLE  
GENERATIONS WITHIN ONE YEAR.

IT GETS REALLY SCARY.  
COCKROACHES ARE DEFINITELY  
SOMETHING YOU WANT TO KEEP AN  
EYE ON.

DERMESTIDAE BEATLE AND CARPET  
BEETLE ALL THOSE GUYS IN THE  
FAMILY THAT FEED ON DRY ANIMAL  
OR PLANT MATERIAL FOR TEXTILES,  
FEATHERS, LEATHER, WOOL, AND  
PAPER.

IT'S NOT THE ADULT BEETLE  
THEMSELVES IT'S THE LARVA THAT  
CAUSES THE DAMAGE BECAUSE THE  
ADULT BEETLE IS INTERESTED IN  
ONE THING AND ONE THING ONLY AND  
IT'S THE SAME THING TEENAGED  
BOYS ARE LOOKING FOR IT'S A  
MEAT.

THEY'RE NOT INTERESTED IN FOOT  
OR COMFORT.

THEY'RE LOOKING FOR A MATE.

ON THE LARVA ON THE OTHER HAND  
WHEN THEY HATCH ARE INTERESTED  
IN ONE THING AND ONE THING ONLY  
AND THAT IS IS FOOD.

AND SO THEY ARE VORACIOUS EATERS  
AND WHAT YOU WANT TO WATCH FOR  
IS THIS SORT OF DAMAGE STARTING  
TO OCCUR.

THIS TUNNELING.

WHAT WE ALWAYS CALL BOOK WARMS  
ARE GENERALLY THE LARVA OF THE  
BEETLES.

ANY OF THOSE CHEWY BITS ON  
FEATHERS AND OTHER THINGS LIKE  
THAT COME FROM THESE BEETLES.

YOU WANT TO BE WATCHING FOR THAT  
SORT OF DAMAGE AND YOU ALSO WANT  
TO WATCH FOR THE ADULT.

THESE LITTLE ROUND BROWN BEETLES  
ARE WHAT YOU LOOK FOR.

WHEN YOU START TO SEE ANYTHING  
LIKE THIS IT MAYBE A GOOD  
INDICATION YOU MIGHT WANT TO  
START MONITORING, START  
INVESTIGATING YOUR COLLECTIONS  
JUST TO MAKE SURE YOU'RE NOT

HAVING A LARGE PROBLEM STARTING  
TO COME AT YOU THAT COULD REALLY  
CAUSE DAMAGE.

WE KNOW WHENEVER WE GET THESE  
INSECTS EATING OUR COLLECTIONS  
THERE IS NO TURNING BACK.

IT'S LIKE THE INK FADING.

WE CAN'T GO BACKWARDS.

ONCE THE LARVA HAVE DIGESTED OUR  
COLLECTIONS, WE CAN'T GET IT  
BACK.

>> THERE ARE TWO DIFFERENT KINDS  
OF MOTHS BUT THEY PRETTY MUCH  
ATTACK THE SAME THING.

FEATHER, WOOL, TEXTILES IN  
GENERAL AND UPHOLSTERED  
FURNITURE AND STUFFING THEY'LL  
GO FOR THAT TOO AND HORSE HAIR,  
THEY'RE GOING TO GO FOR THAT.  
SO YOU CAN SEE THE CASE MAKING  
CLOTHES MOTH ON THE RIGHT THEY  
LOOK VERY SIMILAR SO THEY'RE A  
MOTH LOOKING THING.

AND AGAIN IT'S NOT THE MOTH THAT  
YOU REALLY HAVE TO WORRY ABOUT.  
IF YOU SEE THE MOTH THEN YOU  
KNOW YOU HAVE A PROBLEM BECAUSE  
THE MOTHS ARE AGAIN OUT THERE  
FOR ONE THING AND THAT'S  
CREATING LARVA.

THE LITTLE LARVA WILL EAT AND  
EAT AND EAT AND EAT.

AND IN THE CASE OF THE CASE  
MAKING CLOTHES MOTH WHAT THEY'RE  
DOING IS THEY HAVE EATING YOUR  
TEXTILES AND THEN MAKING A CASE  
THAT ACTUALLY WILL RESEM BALL  
THE TEXTILES THEY'RE EATING SO  
IT'S REALLY DIFFICULT TO SEE  
THESE GUYS.

SO A LOT OF TIMES WHAT YOU WANT  
TO DO IS INVESTIGATE BOXES WHEN  
YOU START SO SEE THE MOTHS.

FOR THOSE WHO LIKE TO DO  
CROSSWORD PUZZLES, FRAS IS A  
GREAT WORSE THAT DOESN'T SHOW UP  
NEARLY ENOUGH.

SO LOOK FOR THE FRAS, WHICH IS ESSENTIALLY BOOK POOP AND THAT'S F-R-A-S-S.

BECAUSE THAT'S GOING TO BE EASIER TO SEE THAN THE CASES. THE WEBBING CLOTHES MOTHS AREN'T AS CAMOUFLAGED BUT THEY DO FORM REALLY LACY CASES.

AND SO AND AGAIN THEY'RE FRASS LOOK PRETTY FAMILIAR.

AND SO WHAT YOU WANT TO DO IF YOU SEE THE MOTHS IS TO START GOING BACK AND GOING THROUGH YOUR TEXTILES TO SEE WHAT YOU CAN FIND IN TERMS OF FRASS AND IF YOU'RE MAKING SURE THAT YOUR TEXTILES ARE STORED IN BOXES, WRAPPED IN TISSUE YOU GET A GOOD FOUNDATION TO SEE THE FRASS SO ANOTHER REASON TO BE GOOD ABOUT YOUR STORAGE HABITS.

WHAT I WANT TO POINT OUT HERE IS SOMETIMES WE NEED TO BE REALLY CAREFUL IN ASSUMING THAT THE DAMAGE THAT WE SEE IS INSECT DAMAGE.

SO WE CAN SEE HERE WE'VE GOT HOLES.

FROM INSECT DAMAGE SO I DON'T KNOW IF IT WAS A CASE MAKING CLOTHES MOTH BUT THESE ARE THE HOLES WOULD LOOK LIKE FROM THE INSECTS.

HOWEVER, WHAT WE SEE DOWN HERE ARE DIFFERENT TYPES OF HOLES AND WHAT I JUST WANT TO POINT OUT IS THE DIFFERENCE BETWEEN THESE TWO HOLES ALTHOUGH THEY LOOK SIMILAR IS THE HOLES BELOW THE LETTERING HAVE A REALLY BROWN STAINING AROUND THEM AND THIS LARGER ONE HERE IS MUCH -- HAS THE BROWN STAINING AROUND IT.

AND SO WHAT YOU SEE HERE IS ACTUALLY IT'S A BASEBALL UNIFORM SO IN THIS SPECIFIC INSTANCE

YOU'RE SEEING THE TOBACCO JUICE THAT SOMEBODY DIDN'T QUITE CLEANLY SPIN AND IT DRIBBLED ON THE UNIFORM AND IT WASN'T WASHED BEFORE BEING GIVEN TO THE ARCHIVES SO THAT TOBACCO JUICE HAS BECOME VERY ACIDIC OVER TIME AND EATEN THROUGH THE WOOL OF THE UNIFORM.

.  
SO YOU'LL WANT TO WATCH FOR THAT.

IN TERMS OF EXTERMINATION WE'RE GOING GET TO ALL OF THAT AT THE END OF THE WEBINAR SO WE WILL GET TO IT.

.  
SO AS WITH STRATEGIES FOR PREVENTING IMPORTATION WE WILL DEFINITELY BE TALKING ABOUT ALL OF THAT.

SO WOOD BORING BEETLES IS SOMETHING WE WORRY ABOUT MORE IN OUR MUSEUMS ALTHOUGH WHEN WE HAVE OLDER LIBRARY BUILDINGS THAT COULD BE AN ISSUE IN THOSE AS WELL AND IT'S NOT SO MUCH THE BEETLE AS THE LARVAE THAT ARE BIG PROBLEMS.

WHAT THE BEETLE IS GOING TO DO IS IT'S GOING TO BORE INTO THE WOOD OR IT COULD POTENTIALLY GET INTO YOUR BOOKS AND LAY THE EGGS AND THEN WHAT HAPPENS IS THAT THE LARVAE HATCHES AND WILL EAT TO TWO TO THREE YEARS MAKING CHANNELS FURTHER AND FURTHER IN TO YOUR FURNITURE, TO YOUR HOUSE STRUCTURE.

INTO YOUR BOOKS SO SOME OF THOSE BOOK WORMS COULD BE WOOD BORING BEETLE LARVAE AND SO WE REALLY CAN RUN INTO JUST ABOUT ANY WOOD-BASED PRODUCT.

REMEMBER A LOT OF OUR AER IS NOW WOOD-BASED WITH THESE TYPES OF INSECTS.

THE POWDER POST BEETLE WHICH IS ONE OF OUR BIGGEST PROBLEMATIC PESTS DOESN'T MATTER WHAT KIND OF WOOD IT IS.

IT REALLY LIKES BUT IT PREFERS HARDWOODS OR BAMBOOS AND ONE THING YOU WANT TO DO TO ENSURE YOU DON'T HAVE A PROBLEM WITH THE WOOD BORING BEETLES IS TO ALWAYS LOOK AROUND YOUR FURNITURE AND LOOK FOR WOOD DUST OR FRASS BECAUSE YOU'LL START TO SEE LITTLE PILES UNDERNEATH WHAT PIECES OF FURNITURE OR AREAS OF YOUR BUILDING YOU'RE HAVING A PROBLEM.

THIS IS WHERE IT'S A REAL GOOD IDEA TO BECOME FRIENDS WITH THE PEOPLE WHO DO YOUR HOUSE CLEANING OR HOUSEKEEPING BECAUSE THEY'RE GOING TO BE THE FRONTLINES IN PROBLEMS LIKE THIS.

CARPET BEETLE DAMAGE LOOKS SIMILAR TO YOUR MOTH DAMAGE BUT WHAT YOU'RE GOING TO SEE IS MORE OF A BLANKET AREA SO INSTEAD OF SINGLE LITTLE HOLES IT'S ALMOST MORE OF COVERING A BROADER AREA RATHER THAN JUST A SINGLE HOLE. USUALLY.

THAT'S NOT ALWAYS THE CASE. AND THE FRASS LOOKS A LITTLE DIFFERENT.

BUT WHEN IT COMES DOWN TO IT IT DOESN'T MATTER IF IT'S BEETLE OR MODULAR HAVE A THE TREATMENT IS THE SAME

YOU STILL WANT TO TRY TO GET AN IDENTIFICATION BECAUSE THEN IT WILL HELP YOU TO FIND THE SOURCE OF THE PROBLEM.

RATHER THAN JUST TREATING THE SYMPTOM.

OKAY.

TERMITES ARE IN THAT SAME KIND OF WOOD BORING BEETLISH TYPE

CLASS.

BUT WHAT TERMITES REALLY WANT IS  
DETERIORATING TREES, LEAF  
LITTER, ALREADY PREDIGESTED  
MATERIALS.

ONCE THEY FIND THE DECAYING  
TREES, SHRUBBERY THEY'LL FIND  
THE DECAYING WOOD.

A LOT OF US HAVE DRY ROT OR DAMP  
ROT DEPENDING ON WHERE WE ARE SO  
THE TERMITES WILL GET IN.

EVEN IF YOU DON'T HAVE  
NECESSARILY A WOODEN STRUCTURE  
DON'T THINK YOU'RE IMMUNE.

THIS PILE OF REPORTS WAS SITTING  
ON A FLOOR IN A BASEMENT AGAINST  
AN EXTERIOR WALL THAT HAD A BIG  
CRACK.

THERE WAS A DEAD TREE OUTSIDE  
AND THE TERMITES FED ON THE  
TREAT AND THE POPULATION GOT TOO  
BIG AND MOVED INSIDE.

PREDIGESTED WOOD TO EAT THROUGH.  
AND THEY ATE THROUGH A STACK  
ABOUT THREE- FEET HIGH.

THEY'LL ENTER YOUR BUILDING AND  
EAT YOUR COLLECTIONS.

YOU WANT TO WATCH OUT FOR THEM  
AND I BELIEVE IF I REMEMBER MY  
MAP RIGHT, NORTHERN MINNESOTA,  
BASICALLY THE WHOLE NORTHERN  
BORDER WITH CANADA AND ALASKA  
ARE THE ONLY AREAS THAT DON'T  
HAVE PROBLEMS WITH TERMITES.

WE ALL CAN HAVE PROBLEMS WITH  
TERMITES.

HOW DO YOU KNOW IF YOU HAVE A  
TERMITE VERSUS ONE OF THE WINGED  
ANTS?

TERMITE WINGS ARE THE SAME SIZE  
TOP AND BOUGHT AND ANTS ARE TWO  
DIFFERENT SIZES AND THE TERMITES  
TEND TO BE THICKER THROUGH THE  
WAIST.

THAT ANTS HAVE THAT NARROW  
VICTORIAN CORSETED WAIST AND  
LOOK AT THE ANTENNA.

THEY'LL BE BENT OR ELBOWED AND  
TERMITES ARE GOING TO BE  
STRAIGHT.

SO YOU WANT TO KEEP AN EYE OUT  
FOR THESE THINGS TO HELP YOU  
IDENTIFY.

YOU WANT TO TREAT FOR TERM  
MIGHTS WHEN IT'S ANTS BECAUSE  
THEY MAY NOT HIT THE ANT COLONY  
AND YOU'LL CONTINUE TO HAVE  
PROBLEMS WITH THAT.

YAY, FOR NORTHERN MINNESOTA.  
I'M A MINNESOTA GIRL SO I WAS  
EXCITED TO SEE PEOPLE FROM  
MINNESOTA ON.

BE REALLY THINKING ABOUT  
IDENTIFYING YOUR PESTS BECAUSE  
IT HELPS IN TERMS OF COMBATTING  
THEM.

IF YOU HAVE ANY QUESTIONS ABOUT  
HOW YOU CAN IDENTIFY A PEST,  
MUSEUMPESTS.NET WHICH IS  
BASICALLY AN ENDEAVOR PUT  
TOGETHER BY THE AMERICAN  
INSTITUTE FOR CONSERVATION TO  
HELP WITH PEST MANAGEMENT IS A  
GREAT RESOURCE AND HAVE A  
MAILING LIST YOU CAN JOIN AND  
POST IMAGES TO AND GET PRETTY  
PROFESSIONAL OPINIONS ON WHAT  
BUG YOU HAVE AND I DO HAVE THAT  
LINK ON THE END OF THIS WEBINAR  
IN A SLIDE OF HELPFUL RESOURCES  
SO YOU'LL BE GETTING THAT AND  
WE'LL BE SURE TO PUT THOSE UP ON  
THE CONNECTING TO COLLECTIONS  
WEBSITE AS WELL.

SO TERMITES.

YES.

OKAY.

SO BEFORE I MOVE ON TO SOME OF  
THE VERTEBRAS LET'S MOVE ON TO  
THOSE THAT LIKE PHOTOGRAPHS, ANY  
OF THESE BEETLES OR COCKROACHES  
THEY COULD BE YOUR SUSPECT WHEN  
IT COMES TO PHOTOS THEY REALLY  
-- BECAUSE THE COCKROACHES AND

SILVERFISH LIKE THE GELATINS AND PASTES YOU COULD HAVE A PROBLEM WITH THE SILVERFISH RATHER THAN THE BEETLES BECAUSE THEY WANT TO EAT THE EMULSION LAYER ON YOUR PHOTOGRAPH.

SO THINK ABOUT THAT.

.  
PIPER, I WILL GET TO YOUR QUESTION WHEN WE GET TO THE SECOND HALF OF THIS.  
IT'S OVER IN MY PARKING LOT SO I WON'T FORGET IT.

WE ALSO HAVE TO WORRY ABOUT THE VERTEBRATE PESTS BECAUSE THEY'RE IN OUR CALLS AND CEILINGS AND BASEMENTS AND WHAT WE WANT TO THINK ABOUT IS HOW THEY GET IN. THIS IS THE TIME OF YEAR WE ARE PROBABLY HAVING PROBLEMS WITH THEM.

THEY COME IN AND IT'S NICE AND WARM AND COLD OUTSIDE SO GOOD HEAVENS, THOSE OF YOU IN HAWAII DOWN IN THE 50s THAT'S JUST WRONG SO YOUR MICE AND RATS ARE PROBABLY COMING IN TOO.

LOOK AT YOUR BUILDING AND KNOW THAT THEY CAN GET IN THROUGH A HOLE TO SIZE OF A DIME AND RATS AND SQUIRRELS THE SIZE OF A QUARTER.

SO THINK ABOUT FOR MICE AND RATS ANY OF THE RODENTS SO SQUIRRELS INCLUDED AND I GUESS YOU CAN MAYBE THINK ABOUT RACOONS AND OPOSSUM, IF THEY CAN GET THEIR HEAD THROUGH SOMETHING SO A CRACK OR A WHOLE, THEY CAN GET THEIR ENTIRE BODY THROUGH SO JUST BE AWARE OF THAT.

WHAT THEY GENERALLY TEND TO DO IS SHRED YOUR PAPER-BASED COLLECTIONS FOR NESTING.

THEY WANT A HOME.

THEY WANT A NICE TOASTY PLACE FOR THEIR BABIES.

SO THEY'LL SHRED YOUR PAPER FOR NESTING.

THEY WON'T NECESSARILY EAT IT. THEY'RE VERY DESTRUCTIVE AND GENERALLY NOT AFRAID OF PEOPLE ESPECIALLY IF YOU'RE ON, SAY, A COLLEGE CAMPUS.

YOU'LL GET THE SQUIRRELS MOVING IN DURING CHRISTMAS BREAK AND MAKING A HOME IN YOUR COLLECTION AND CARING THE LIVING DAYLIGHTS OUT OF A STUDENT WHEN THEY COME BACK AND START THE SPRING SEMESTER.

HURTING SQUIRRELS IS NO FUN. I'M SPEAKING FROM EXPERIENCE. DO WHAT YOU CAN TO KEEP THEM OUT.

FOR MICE AND RATS IT'S MAYBE NOT THE ANSWER PETA WILL WANT TO HEAR BUT SNAP TRAPS ARE THE REALLY INEXPENSIVE AND MOST EFFECTIVE ROUTE TO TAKE WITH THE MICE AND THE RATS AND IT'S SAFER THAN POISONS AND WE'LL TALK ABOUT THAT AGAIN LATER ON IN THIS WEBINAR.

FOR THE OTHER VERTEBRATE PESTS, RAT EXCREMENT AND PIGEON IS OILY AND CAN CAUSE DAMAGE.

HOPEFULLY THEY DON'T GET INTO YOUR BUILDING AND START FLYING AROUND.

BATS TEND TO BE MORE OF A PROBLEM BECAUSE THEY ARE ACTUALLY IN OUR ATTICS AND IF WE HAVE COLLECTIONS IN THE ATTICS THAT CAN BE PROBLEMATIC.

THE HUNTA VIRUS IS SOMETHING WE WANT TO THINK ABOUT BUT IT DOESN'T COME WITH THE DROPPINGS. THE VIRUS COMES FROM THE NESTING MATERIALS.

THE DROPPINGS ARE NOT PLEASANT. THEY'RE RAT SIZED OR MOUSE SIZED.

AGAIN, WE CAN TELL WHAT PEST WE

HAVE BY THE FRASS BUT THE VIRUS  
COMES IN THE NESTING.

SO WHEN WE WERE HEARING ABOUT  
THE CASE OUT FROM YOSEMITE THEY  
WERE PROBABLY NESTING IN THE  
MATTRESSES IN THE CABINS SO WHEN  
PEOPLE SLEPT ON THE MATTRESSES  
IT WASN'T SO MUCH THE DROPPINGS  
BUT THE NESTING MATERIALS THEY  
WERE INHALING THE VIRUS FROM BUT  
YOU WANT TO GET RID OF THE  
DROPPINGS ANYWAY.

IT'S NOT SOMETHING YOU WANT TO  
ADVERTISE.

WE HAVE INDIRECT TESTS WE WANT  
TO BE THINKING ABOUT.

THEY'RE PESTS THAT GET INTO OUR  
COLLECTIONS THAT AREN'T  
NECESSARILY DIRECTLY PROBLEMATIC  
TO OUR BOOKS, OUR PAPERS, OUR  
TEXTILES, OUR FURNITURE, OUR  
LEATHER GOODS BUT THEY ARE  
ATTRACTERS FOR OTHER THINGS.

SO PILL BUGS, DOODLE BUGS.  
EVERY STATE IN THE SOUTHERN  
U.S. HAS A NAME.

I KNOW THEM UNDER THE NAMES OF  
DOODLE BUG AND PILL BUG SO IF  
HAVE YOU ANOTHER NAME I'D LOVE  
TO HEAR IT BUT THEY'RE THE  
LITTLE ARMEDILLO BUG AND THEY'RE  
OFTEN FOUND IN OUR BASEMENTS AND  
WITH ANY OF THESE INDIRECT PESTS  
WHEN THEY DIE THEY'RE CORPSES  
ACTUALLY ATTRACT THE DERMESTIDAE  
BEETLES AND THEY'LL EAT YOUR  
OTHER BUGS AND STAY TO FIND  
REALLY GOOD PLACES TO LAY EGGS.  
DRAIN FLIES ARE OFTEN FOUND IN  
OUR BATHROOMS.

I THINK THEY'RE ALSO OFTEN  
CALLED SEWER FLIES.

THEY'RE THE FUZZY LOOKING ONES.  
BASICALLY THEY'RE GIVING YOU THE  
MESSAGE YOUR DRAIN NEEDS  
FLUSHING.

AGAIN, THEY'RE NOT A DIRECT PEST

BUT THEY'LL ATTRACT THE OTHERS  
WHEN THEY DIE.  
MOTHS, THE BIG WHITE ONES NOT  
THE CLOTHE MOTHS.  
THE ONES THAT GO BANGING AGAINST  
YOUR LIGHTS AT NIGHT.  
AGAIN, OFTEN GET INTO YOUR  
BUILDING.  
THEY'RE NOT GOING TO EAT YOUR  
COLLECTIONS BUT WILL GET EATEN  
BY THE BEETLES.  
SUPPLIES ARE PROBABLY IN THIS  
CATEGORY TOO.  
I WOULD REALLY LOOK RIGHT NOW TO  
THE PROBLEM OF YOUR INDOOR  
PLANTS AND HOW MUCH THEY'RE  
BEING WATERED.  
IT COULD BE THAT THEY'RE BEING  
WATERED TOO MUCH AND THAT'S  
WHAT'S ATTRACTING THE FRUIT  
FLIES.  
SO THE FRUIT FLIES AGAIN  
THEMSELVES NOT A BIG PROBLEM BUT  
WILL GET EATEN BY SOMEBODY ELSE  
AND IT COULD BE THE INVITATION  
TO BRING SOMEBODY ELSE INTO YOUR  
COLLECTION.  
AND THEN YOU WANT TO THINK ABOUT  
THOSE SPIDERS.  
WE ALL HAVE SPIDERS IN THE  
BASEMENT OR IN OTHER PLACES AND  
WE WANT TO JUST ASK OURSELVES,  
IF WE HAVE SO MANY SPIDERS, HOW  
ARE WE SUPPORTING THE COLONY SO  
HERE THE SPIDERS ARE CATCHING  
THE MOTHS.  
THEY'RE CATCHING ALL THESE OTHER  
INSECTS COMING AROUND AND  
THEY'RE EATING THEM AND LEAVING  
THE CARCASSES BEHIND AND HERE  
COME THE DERMESTIDAE BEETLES AND  
WHAT IT COULD MEAN FOR  
ATTRACTING OTHER PESTS INTO YOUR  
COLLECTIONS.  
AND FINALLY BECAUSE SOME HAD  
ASKED ABOUT THIS BACK IN THE  
FIRST WEBINAR THAT WE DID,

BEDBUGS.

THEY AREN'T AGAIN DIRECT PESTS FOR OUR COLLECTIONS BECAUSE THEY DON'T EAT OUR COLLECTIONS, THEY WANT TO EAT OUR BLOOD WHICH IS WHY WE ALL GET A LITTLE WIGGY ABOUT THEM.

THEY YOU WILL START TO NOTICE THEM MANIFESTING AS LITTLE BLACK DOTS ON YOUR BOOKS.

MOST COMMONLY IN OR NEAR THE SPINE BECAUSE THEY LIKE IT DARK AND QUIET AND SO THAT'S THEIR MOST LOGICAL PLACE TO GO.

THE LITTLE BLACK DOTS ARE ESSENTIALLY THEIR FRASS AND SO IT'S THEIR EXCREMENT AND THAT'S WHAT YOU'RE NOTICING.

AND FOR BEDBUGS, DEFENDING ON YOUR COLLECTIONS, THEY WILL BE TAKEN CARE OF EITHER BY THE FREEZING PROCESS WE'RE GOING TO TALK ABOUT AS COMPARED TO THE HEATING PROCESS.

SO FOR BEDBUGS ONE OF THE MOST COMMON WAYS TO TREAT THEM IS THROUGH HEAT.

AND SO WHAT YOU DO IS YOU CAN ESSENTIALLY COOK YOUR BOOKS. NOT FOR SPECIAL COLLECTIONS MATERIALS.

IF YOU HAVE GENERAL COLLECTIONS OR CIRCULAR MATERIALS.

I JUST SAW THE BROWN RECLUSE COMMENT.

GIVES ME THE SHIVERS.

YOU CAN PUT THEM ON THE TOP RACK OF A HOUSEHOLD OVEN WITH A PAN OF WATER IN THE BOTTOM AND TERM THE OVEN ON TO THE WARM SETTING WHICH FOR MOST OF US IS AROUND 170 DEGREES FAHRENHEIT AND LEAVE IT FOR AN HOUR, TURN OFF THE OVEN AND ONCE THE OVEN HAS COOLED DOWN TAKE THE BOOK OUT AND THAT WILL ACTUALLY KILL ALL OF THE STAGES OF THE BEDBUG.

AGAIN, IF IT'S YOUR SPECIAL COLLECTION MATERIAL WE WANT TO GO WITH THE FREEZING ROUTE WHICH WE'RE GOING TALK ABOUT LATER ON IN THIS SESSION.

WHAT I'M GOING HAVE CAN CAN CAN KRISTEN DO NOW IS DO A POLL QUESTION AND SEE WHAT QUESTIONS WE HAVE FROM THIS FIRST BUGGY SECTION OF OUR WEBINAR TODAY.

>> SO WE GOT LOTS OF VOTES FOR ROLLY POLY AND POTATO BUG AND SOME CALL IT TREE LICE OR WOODLICE.

I DON'T KNOW WHAT PILL BUG'S BEING REFERRED TO.

>> OH, YEAH, THE ROLY POLY. I DO LIKE THAT NAME MAKES THEM SOUND FUN.

>> THERE'S A QUESTION ABOUT CARPENTER ANTS.

>> I DON'T KNOW IF I BELIEVE THAT.

>> AM I REPEATING THE QUESTION? IT'S BEEN A WHILE.

>> THE COMMENT FROM SANDY WAS THAT CARPENTER ANTS SHE WAS TOLD THEY WILL NOT COME IN THE MUSEUM AND WORK ON THEIR FURNITURE AND THIS COULD BE TRUE.

WHAT CARPENTER ANTS REALLY PREFER IS ALREADY ROTTING WOOD SO THEY'RE LIKE THE TERMITES. IF YOU SEE THE CARPENTER ANTS YOU PROBABLY HAVE SOME WHERE IN YOUR BUILDING THAT HAS ROTTING WOOD AND THAT'S WHAT THEY PREFER.

IF YOU HAVE ANY SORT OF DAMAGED WOOD THESE DRIED OUT OR ARCHEOLOGICAL WOOD THEY COULD POTENTIALLY BE ATTRACTED SO YOU JUST WANT TO CATCH THEM AT THAT PERIMETER POINT RATHER THAN LETTING THEM COME IN.

AGAIN, WHEN WE TALK ABOUT MONITORING THAT'S WHERE WE'RE

REALLY GOING TO BE LOOKING FOR A LOT OF THOSE SORTS OF PESTS AND MAKING SURE THEY DON'T GET FURTHER IN TO GET TO OUR FURNITURE.

CRICKETS AGAIN ARE ONE OF THE INDIRECT PESTS WHEN THEY DIE. THEY WILL ATTRACT THE DERMESTIDAE BEETLES.

GECKOS THEY'RE DAMAGE WILL PROBABLY BE MORE FROM THEIR EXCREMENT THAN ANYTHING ELSE. THEY'RE NOT GOING TO EAT YOUR COLLECTIONS BUT IF THEY'RE COMING INTO YOUR BUILDING TO EAT THE OTHER BUGS THEY'LL ALSO HAVE PROBABLY DIE IN YOUR BUILDING AND THEN START TO ATTRACT THE OTHER DERMESTIDAE BEETLES.

THE TEMPERATURE FOR BEDBUGS WAS 170 DEGREES FOR AN HOUR AND LET THEM COOL AND TALK ABOUT THE TEMPERATURE LATER IN THE WEBINAR SO WE ARE GETTING TO THAT.

.  
>> WHAT ABOUT MILLIPEDES OR CENTIPEDES?

>> INDIRECT PESTS.

THEY'LL DIE.

SOMEBODY ELSE WILL EAT THEM AND THEN IT'S USUALLY THE DERMESTIDAES AND THEY'LL DIE AND LAY THEIR EGGS.

I HAVE OPINIONS ON THE STICKY TRAPS AND I'LL TALK ABOUT THAT WHEN I TALK ABOUT MONITORING AND TRAPS AS WITH THE SNAP TRAPS ARE BETTER THAN THE GLUE TRAPS.

THERE ARE REASONS FOR THAT.

SO WE WILL BE GETTING TO THAT.

>> WHAT GOOD ABOUT GECKOS OR LIZARDS?

>> I DID GECKOS.

THEY'LL DIE AND BECOME THE INDIRECT PESTS

I DID SEE SOMEBODY SHARED THE LINK TO THE ST. LOUIS PIGEON

POOP PROBLEM.

THANK YOU.

IT GOES TO SHOW YOU SHOULD TAKE CARE OF YOUR COLLECTS.

THANK YOU, MICHAEL FOR SHARING THAT.

IT'S ONE OF MY FAVORITE THINGS TO SHARE WITH MY STUDENTS.

IT IS POSSIBLE KILL INSECTS IN THE BOOKS IN THE MICROWAVE BUT IN THE MICROWAVE YOU CAN DO EXTRANEIOUS DAMAGE TO THE COLLECTIONS BECAUSE REMEMBER WHEN WE WERE TALKING ABOUT ENVIRONMENT WITH TARA AND THE HIGHER YOU RAISE THE TEMPERATURE THE FASTER THE CHEMICAL DETERIORATION MECHANISMS ARE WORKING SO OF AND SO WE'RE REALLY ACCELERATING THE DETERIORATION OF YOUR COLLECTIONS WHEN YOU DO THAT SO WHAT WE'LL TALK ABOUT LATER ON IN THE SESSION IS THE ALTERNATIVE TO THAT WHICH IS FREEZING.

LADY BUGS ARE IN THE SAME CATEGORY.

THEY'RE PART OF INDIRECT PESTS. THEY'RE NOT GOING EAT ANYTHING BUT THEY DO ATTRACT THE DERMESTIDAE BEETLE AND ASIAN BEETLES, SAME THING.

WHAT DO I WITH FIRE ANTS IS TRY TO STAY FAR AWAY FROM THEM. WITH YOUR FIRE ANTS WHAT YOU'RE GOING WANT TO DO IS FIND AN EXTERMINATOR BECAUSE THEY'RE NOT GOING TO BE A PROBLEM YOUR COLLECTIONS BUT THEY CAUSE A PROBLEM ESPECIALLY PART OF YOUR INSTITUTIONS MISSION IS TO HAVE OUTDOOR SPACE FOR PEOPLE.

I STILL VIVIDLY REMEMBER FIRE ANTS FROM THE SECOND DAY I WAS LIVING IN TEXAS AND IT WAS NOT PLEASANT.

THE LADY BUGS DO LEAVE THEIR FRASS BEHIND WHICH IS PROBLEMATIC BUT THE BIGGER PROBLEM IS THEY WILL ATTRACT THE DERMESTIDAE BEETLES.

I THINK I'M GOING MOVE ON NOW TO INTERGRATED PEST MANAGEMENT.

SO FOR THOSE WHO DON'T HAVE A WRITTEN POLICY OR DON'T KNOW IF WE HAVE A WRITTEN POLICY ABOUT DEALING WITH THESE PESTS THIS IS WHERE WE'RE GOING THINK ABOUT WRITING ONE OF THESE POLICIES.

SO KRISTEN IF I CAN HAVE THE POLL OUT.

THANK YOU.

SO WHAT WE WANT TO THINK ABOUT WITH INTERGRATED PEST MANAGEMENT IS REALLY A HOLISTIC APPROACH. SO INTERGRATED PEST MANAGEMENT IS A CHEMICAL-FREE STRATEGY THAT'S GOING TO REALLY FOCUS ON MAINTAINING A STORAGE ENVIRONMENT THAT DISCOURAGES OUR PESTS.

WHAT WE'RE TRYING DO IS MOVE AWAY FROM THE PESTICIDES AND MOVE INTO A MITIGATION STRATEGY AND SO WE'RE GOING TO THINK ABOUT WHAT WE CAN DO SO MAKE OUR ENVIRONMENTS INHOSPITABLE TO THE

PESTS.

WE ALSO WANT TO BE THINKING ABOUT ALWAYS MONITORING TO SEE WHERE WE'RE AT WITH OUR STRATEGY.

HOW WELL IT'S WORKING AND THEN IF WE DO HAVE AN INFESTATION TO TAKE NON-CHEMICAL ACTIONS TO COMBAT THEM BECAUSE THE PESTICIDES ARE NOT GOOD FOR US AND THEY CONTAIN CHEMICALS THAT ARE REALLY NOT GOOD FOR OUR COLLECTIONS.

SO WE REALLY WANT TO THINK ABOUT WHAT WE CAN DO AS A PROACTIVE

MEASURE THAN ALWAYS BEING  
REACTIVE IN WHAT WE'RE DOING.  
SO WE WANT TO START THINKING  
FROM THE OUTSIDE IN BECAUSE FOR  
MOST OF US OUR BIGGEST PROBLEM  
IS GOING TO BE COMING TO US FROM  
THE OUTSIDE.

AND SO WE WANT TO TAKE A REALLY  
CLOSE LOOK AT OUR LANDSCAPING.  
SOME DAYS THE WORDS JUST DON'T  
COME.

AND SO WE WANT TO THINK ABOUT  
REALLY LOOKING AT WHERE OUR  
PLANTINGS ARE FOR OUR BUILDINGS.  
SO IF YOU'RE UP HERE IN NEW  
ENGLAND OR IN MANY CASES ACROSS  
THE COUNTRY YOU KNOW TOO LOOK  
VERY STATELY AND OFFICIAL YOU  
MUST HAVE IVY GROWING ALL OVER  
YOUR BUILDING.

WELL, THE IVY IS REALLY POOR IN  
TERMS OF HELPING TO MAINTAIN A  
DRY ATMOSPHERE WITHIN YOUR  
BUILDING.

THE IVY'S GOING HOLD IN MOISTURE  
BUT IT'S ALSO GOING TO GIVE A  
GREAT HOME FOR INSECT PESTS, FOR  
BIRDS AND THE LITTLE SUCKER FEET  
OF THE IVY WILL WORK INTO YOUR  
BRICK WORK OR YOUR STONE WORK  
AND ALLOW WATER IN WHICH THEN  
TURNS TO ICE IN THE WINTER AND  
YOU START TO GET CRACKS FORMING  
BECAUSE YOU HAVE THIS IVY  
GROWING ALL OVER.

YOU CAN ALSO GET TO THE POINT  
WHERE NO ONE MAINTAINS THAT AND  
THE IVY GROWS IN YOUR WINDOWS  
AND YOU CAN'T ACTUALLY SHUT YOUR  
WINDOWS WHICH THEN OF COURSE  
JUST LETS EVERYBODY IN STRAIGHT  
AWAY.

SO THINK ABOUT CLEARING AWAY  
YOUR LANDSCAPING AROUND THE  
FOUNDATION OF YOUR BUILDING OUT  
ABOUT THREE FEET AND WHAT YOU  
REALLY WANT TO DO IS GET IN A

REALLY GOOD GRAVEL MULCH.  
SO YOU HAVE A BARRIER BETWEEN  
YOUR LANDSCAPING AND BUILDING.  
IT DOESN'T NECESSARILY MEAN YOU  
CAN'T HAVE ANY LANDSCAPING BUT  
JUST KEEP IT THREE FEET AWAY  
FROM YOUR BUILDING AND USE  
GRAVEL MULCH RATHER THAN BARK  
MULCH.

THE BARK MULCH IS GROUND UP WOOD  
WHICH AS IT STARTS TO COMPOST  
WILL BE ATTRACTIVE TO YOUR  
CARPENTER ANTS AND YOUR TERMITES  
AND ALL THE OTHER PESTS YOU  
DON'T WANT IN SO GRAVEL IS A  
BETTER CHOICE IN THAT RESPECT.  
YOU ALSO WANT TO THINK ABOUT THE  
LIGHTING AROUND YOUR BUILDING  
AND NOT HAVE TOO MUCH EXCESS  
LIGHTING OR IF YOU DO WANT TO  
HAVE LIGHTING OUTSIDE YOUR  
BUILDING DON'T HAVE IT DIRECTLY  
MOUNTED TO THE BUILDING BECAUSE  
AGAIN THAT'S GOING TO ATTRACT  
THE MOTHS.

SOMEBODY'S GOING TO OWN THE  
DOOR, WALK OUT, THE MOTHS WILL  
COME IN AND THEN YOU START TO  
GET THE HALF OF INVITING IN THE  
DERMESTIDAE BEETLES FROM THE  
BUGS YOU HAVE COMING IN.

WE WANT TO THINK ABOUT ANIMAL  
PROOFING OUR GARBAGE CONTAINERS  
AND MOVING THEM AWAY FROM THE  
BUILDING.

THOSE OF US WHO HAVE LIVED IN  
MORE RURAL AREAS KNOW THAT WE  
NEED TO SOMETIMES EVEN PADLOCK  
OUR GARBAGE CANS TO COMBAT THE  
BEAR OR THE COONS.

BUT SQUIRRELS AND RATS ARE GOING  
TO BE TWO OF OUR BIGGEST  
PERPETRATORS ESPECIALLY WITH THE  
BIG DUMPSTERS.

SO LOOK AT WHETHER YOU CAN  
SECURE YOUR GARBAGE CANS AND IF  
YOU CAN'T, REALLY THINK ABOUT

WHERE THEY ARE LOCATED.

ONE OF THE INSTITUTIONS THEY WORKED AT HAD THE DUMPSTERS FOR THE BUILDING IN THE LOADING DOCK.

AND SO THE LOADING DOCK WAS OPEN ALL DAY AND THEN CLOSED AT NIGHT AND SO OF THE SQUIRRELS AND THE RATS IN THE DUMPSTERS WERE LOCKED IN THE LOADING DOCK AT NIGHT SO WHEN PEOPLE CAME IN FIRST THING IN THE MORNING YOU HAD SQUIRRELS RUNNING AROUND ALL OVER IN THE LOADING DOCK AND WHEN YOU OPENED THE BACK DOOR THEY COULD EASILY HAVE GOTTEN IN.

SO YOU REALLY WANT TO THINK ABOUT NOT ONLY WHAT KIND OF GARBAGE CONTAINERS YOU'RE USING BUT WHERE THEY'RE LOCATED SO MOVE THEM AWAY FROM THE BUILDING OR AN ENTRANCE POINT YOU DON'T WANT TO ENCOURAGE THEM TO MOVE IN.

YOU ALSO WANT TO THINK ABOUT CLEANING YOUR DRAINS AND GUTTERS BECAUSE AGAIN EXCESS WATER IS GOING TO CAUSE A LOT OF PROBLEMS OVER TIME ESPECIALLY IN THE AREAS WHERE WE DO GET FOUR SEASONS.

EXCESS WATER CAN GET IN. IF YOU HAVE A LOT OF EXCESS WATER AND DON'T CLEAN YOUR GUTTERS THE WATER THEN INSTEAD OF FLOWING OUT STARTS TO FLOW IN TO YOUR EAVES AND UNDER YOUR ROOF LINE AND WILL START TO ROT THE WOOD WHICH AGAIN IS GOING TO ATTRACT YOUR TERMITES OR SQUIRRELS THAT CAN CHEW INTO A HOLE OR THE PESKY EUROPEAN STARLINGS THAT LIKE TO BUILD THEIR NESTS IN THERE.

YOU WANT TO THINK ABOUT GOOD EXTERIOR MAINTENANCE OF YOUR

BUILDING AND FILL ANY OF THOSE  
CRACKS OR GAPS YOU START TO SEE.  
SOMETHING LIKE THIS HERE IS JUST  
-- THAT IS A SUPER HIGHWAY FOR  
INSECTS AS WELL AS BEING LARGE  
ENOUGH TO LET IN MICE.

IF YOU THINK ABOUT THE IVY  
THAT'S GROWING RIGHT ALONG HERE  
ON THE BUILDING, WHEN THAT IVY  
EXPANDS AND COVERS UP THAT HOLE  
THAT'S JUST GOING TO BE PRIME  
HOUSE HABITAT.

SO REALLY BE AWARE OF WHAT'S  
GOING ON IN YOUR BUILDING AND  
TAKE A LOOK AT THINGS AND  
OBSERVE.

DO YOU START TO SEE CHANGES IN  
THINGS.

DO YOU START TO SEE LITTLE PILES  
OF SAW DUST THAT COULD BE WOOD  
BORING BEETLES.

DO YOU SEE PILES OF DUST IN ODD  
PLACE HAS IT COULD BE FRASS?  
TAKE A LOOK AT THINGS LIKE THAT  
AND THEN FINALLY IF YOU CAN KEEP  
YOUR DOORS CLOSED DURING THE  
SUMMER MONTHS.

DON'T PROBLEM THEM OPEN.  
PROPPING THEM OPEN JUST REALLY  
MEANS NOBODY HAS TO WORK HARD AT  
ALL TO GET INTO YOUR BUILDING.  
WHEN WE'RE LOOKING AT THE INSIDE  
OF OUR BUILDING WE'RE ALWAYS  
GOING TO BE AWARE-ONE OF THE  
THINGS I REALLY LIKE TO TRY TO  
EMPHASIZE WITH MY STUDENTS I  
TEACH AT SIMMONS IS TO START TO  
BECOME MORE AWARE OF THEIR  
SURROUNDINGS BECAUSE IT'S  
AMAZING WHAT LITTLE IT TAKES TO  
NOTICE IN TERMS OF CHANGES IN  
THINGS.

AND SO JUST ALWAYS BE MONITORING  
AND LOOKING BUT YOU CAN ALSO  
MONITOR WITH VARIOUS DEVICES AND  
WE'RE GOING LOOK AT SOME OF  
THOSE.

WE WANT TO FILL GAPS OR HOLES IN OUR DOORS AND WINDOWS SO WEATHER STRIPPING OUR DOORS, CALKING OUR WINDOWS TO MAKE SURE THAT YOU DON'T HAVE ANY GAPS THERE.

NOT ONLY HOPES TO KEEP THE PESTS OUT BUT ALSO HELPS TO MAINTAIN YOUR INTERNAL ENVIRONMENT.

YOU'RE LESS LEAKY THAT WAY.

SPEAKING OF LEAKS, WE WANT TO REPAIR ANY LEAKS QUICKLY WHETHER IT'S A ROOF LEAK, WHETHER IT'S A WINDOW LEAK OR A LEAK IN THE BATHROOM FROM A WATER FOUNTAIN, WE WANT TO REPAIR THEM QUICKLY AND IN THE SUMMERTIME -- SUMMER MONTHS WE ALWAYS WANT TO BE CHECK OUR AIR CONDITION'S CONDENSATE LINES OR PANS DEPENDING ON THE SYSTEM YOU HAVE.

THEY TEND TO START TO HAVE ALGAE IN THEM AND GET CLOGGED UP EASILY.

SO WORK WITH YOUR MAINTENANCE OR FACILITIES PEOPLE TO ALWAYS BE CHECKING ON THAT ESPECIALLY DURING THE SUMMER MONTHS BECAUSE THAT CAN LEAD TO SLOW LEAKS THAT WILL BE DIFFICULT TO FIND AND VERY DIFFICULT TO CLEAN UP.

ALWAYS BE MONITORING YOUR TEMPERATURE AND RELATIVE HUMIDITY SO YOU KNOW WHAT YOUR ENVIRONMENT IS LIKE THE PESTS LIKE THE HIGHER RELATIVE HUMIDITIES AND TRY TO MINIMIZE THE NUMBER OF INDOOR PLANTS YOU HAVE.

IF YOU HAVE INDOOR PLANTS REALLY AVOID OVER WATERING THEM.

IT'S REALLY IN OVER WATERING YOU CAN GET A LOT OF PROBLEMS AND AGAIN MONITOR THOSE INDOOR PLANTS.

IF YOU START TO SEE ANY SORT OF APHIDS OR BUGS THEY HAVE GO

BECAUSE THEY'LL CAUSE PROBLEMS  
OVER TIME.

HOW DO YOU STORE YOUR  
COLLECTIONS?

LET'S TALK ABOUT THAT LIKE WE  
DID YESTERDAY.

ARE THEY AND THE FLOOR.

ARE THEY UP AGAINST WALLS.

ARE YOU INVITING THE MICE AND  
RATS TO COME THEY'LL TRAVEL AT  
THE INTERSECTION BETWEEN THE  
FLOOR AND WALL.

SO THEY'LL BE TRAVELLING BEHIND  
ALL THIS STUFF AND YOU'RE NEVER  
GOING SEE THAT YOU HAVE A  
PROBLEM UNTIL IT'S BECOME REALLY  
BIG.

YOU WANT TO ALWAYS BE REMOVING  
YOUR GARBAGE OR KITCHENS AWAY  
FROM FOOD AND TRAIN THE PEOPLE  
DOING YOUR CLEANING OR  
HOUSEKEEPING TO BE LOOKING FOR  
INSECT CARCASSES, FRASS, LITTLE  
PILES OF SAW DUST, THINGS THAT  
REALLY COULD BE GOOD INDICATORS  
OF PROBLEMS.

AGAIN, THEY'RE REALLY YOUR FRONT  
LINE AND THEY'RE GOING TO BE THE  
PEOPLE WHO NOTICE THESE THINGS  
FIRST AND WHEN HAVE YOU A GOOD  
RELATIONSHIP FIRST THEY'LL COME  
TO YOU SOONER RATHER THAN LATER.  
SO BE THINKING ABOUT THINGS LIKE  
THAT.

AGAIN, TRY TO ENCOURAGE PEOPLE  
NOT TO EAT AT THEIR DESKS.  
ESPECIALLY IF THEY TEND TO HAVE  
COLLECTION MATERIALS THAT  
THEY'RE PROCESSING AT THEIR  
DESKS.

AND TO KEEP THE AREA CLEAN.  
I'VE WORKED AT INSTITUTIONS  
WHERE THERE'S BEEN CERTAIN  
DEPARTMENTS THAT LIKE TO  
CELEBRATE THE BIRTHDAY AND  
HOLIDAYS AND HAVE ANY EXCUSE FOR  
A PARTY AND THE ONE DEPARTMENT

THAT ALWAYS COMES BACK TO MY MIND WASN'T VERY GOOD ABOUT CLEANING UP AFTER THEIR CRUMBS AND THAT WAS THE ONE AREA IN THE LIBRARY THAT ALWAYS HAD PROBLEMS WITH MICE AND SO IT DOES MAKE A DIFFERENCE.

IF YOU DO FIND AN INSECT. SAVE IT, TAKE A PICTURE OF IT. POST IT.

FIND OUT WHAT IT IS.

DO YOU HAVE TO WORRY?

JUST REALLY ARE YOU STORING THINGS IN SUCH A WAY WHERE IT WILL BE DIFFICULT TO DO ANY MONITORING OR NOTICE ANYTHING.

THE LARGER MESS YOU HAVE THE MORE DIFFICULT IT BECOMES.

SO IF YOU SEE THIS RIGHT HERE THAT WAS THAT PILE OF REPORTS THAT WHEN THE TOP REPORT CAME OFF HAD ALL THE TERMITES UNDERNEATH IT AND AGAIN IN HERE.

HOW ARE YOU GOING TELL IF YOU HAVE A PROBLEM WITH ANYTHING WITH ALL THIS CLUTTER.

I KNOW MOST OF US DON'T HAVE ENOUGH STORAGE SPACE BUT WE NEED TO LEARN TO MAKE DO WITH WHAT WE HAVE AND TO BE AS NEAT AS WE POSSIBLY CAN BECAUSE THAT'S GOING TO BE OUR BEST WAY TO A, BE ABLE TO MAINTAIN INTELLECTUAL CONTROL AND BE ABLE TO MONITOR FOR THESE TESTS.

-- PESTS.

SO BETHANY FOR YOUR QUESTION ON

YOU'RE GETTING A NEW CLEANING COMPANY, WHAT'S THE BEST TRAINING.

WE'LL TALK ABOUT THAT WHEN WE TALK NEXT WEDNESDAY ABOUT THE STAFF AND VOLUNTEER TRAINING.

SO WE'LL DEFINITELY COVER THAT.

SO WHEN WE GO TO DO MONITORING THERE ARE DIFFERENT WAYS TO DO

IT.

THERE ARE BASICALLY TWO DIFFERENT TYPES TO PUT OUT. INSECT TRAPS AND RODENT TRAPS. FOR OUR INSECTS, WE CAN DO WHAT ARE CALLED OFTEN TIMES EITHER STICKY TRAPS OR BLENDER TRAPS. YOU'RE BASICALLY PUTTING THEM OUT TO BASICALLY JUST SEE IF YOU HAVE A PROBLEM.

YOU CAN GET JUST PLAIN OLD STICKY TRAPS THAT HAVE NOTHING ON THEM EITHER FOR YOUR FLOOR OR TO HANG.

SO IF YOU WANT TO CATCH MOTHS OR CRAWLEY BUGS, YOU KNOW, THAT'S SOMETHING THAT YOU CAN DO AND IT'S GOING TO HELP MONITOR WHO WALKS IN AND PUT YOUR FLOOR-BASED STICKY TRAPS UP AGAINST THE BASE BOARDS SO AS THE INSECTS ARE TRAVELLING AROUND THE BASE BOARD THEY'RE GOING THROUGH THE TRAPS SHOW BASE BOARD IS HERE AND FLOOR IS HERE AND GO THROUGH THE OPEN SPOT IN THE STICKY TRAP.

WITH YOUR HANGING TRAPS YOUR GOING TO HANG THEM WHERE THE TEXTILES ARE HANG.

YOU CAN GET PHEROMONES TO GET IN HERE.

INSECTS LIMITED IS A GREAT COMPANY IN TERMS OF MONITORING MATERIALS REALLY GEARED TOWARDS LIBRARIES, ARCHIVES AND MUSEUMS WILL HAVE ALL THE PHEROMONES FOR THE WEIRD PESTS YOU HAVE.

YOU CAN ALSO GET STICKY TRAPS FOR SILVERFISH BUT I HAVE IN

CONVERSATION WITH AN ENTOMOLOGIST FOR MUSEUMS AND ARCHIVES HAS RECOMMENDED YOU DON'T PUT THEM DOWN THE WAY THE BOX SHOWS YOU TO PUT THEM DOWN. BASICALLY PUT FOUR PENNIES ON

THE FLOOR UPSIDE DOWN BECAUSE SILVERFISH TRY TO EAT FROM THE BOTTOM UP SO THEY'LL EAT THROUGH THE PAPER AND NEVER GET CAUGHT ON THE STICKY PART SO PUT THE STICKY PART DOWN SO THEY GET CAUGHT.

WHAT YOU WANT TO BE AWARE OF IS IF YOU'RE USING PHEROMONES BE CAREFUL BECAUSE WHAT YOU DON'T WANT TO DO IS ATTRACT THE INSECTS FROM THE OUTSIDE TO COME IN.

SO REALLY THINK ABOUT USING PHEROMONES ONLY WHEN YOU KNOW YOU HAVE A PROBLEM AND YOU WANT TO TRY TO GET A BETTER SENSE OF HOW MANY YOU HAVE BECAUSE YOU ALREADY KNOW YOU HAVE THEM. YOU WANT TO THINK ABOUT THAT. FOR YOUR RODENT PESTS YOU REALLY WANT TO GO WITH THE SNAP TRAP AS COMPARED TO THE POISONS OR THE STICKY TRAPS.

THE STICKY TRAPS ON MANY LEVELS ARE REALLY CRUEL.

I HAVE SEEN BODY PARTS LEFT IN STICKY TRAPS BECAUSE THEY'RE LIKE THE OLD ANIMAL TRAPS THAT WOULD BE PUT OUT IN THE WOODS AND THE MOUSE GETS CAUGHT AND WILL CHEW ITS LEG OFF TO GET AWAY.

NOT EXACTLY SOMETHING THAT YOU WANT TO THINK ABOUT.

YOU'D RATHER JUST HAVE IT TAKEN CARE OF.

AND SO YOU'RE GOOD OLD FASHIONED SNAP TRAPS ARE THE BEST THING FOR THAT.

I'VE SEEN THE CONVERSATION GOING.

I REALLY LIKE CHUNKY JIFF. THE MICE LIKE THE FAT AND SUGAR. I'VE NEVER CAUGHT A MOUSE WITH CHEESE ABOUT THE PEANUT BUTTER IS JUST THE BEST WAY TO GO.

NOW, WITH THE SNAP TRAPS IF YOU DON'T HAVE A FACILITIES PERSON COMING AROUND YOU CAN GET SNAP TRAPS THAT ARE IN BOXES SO YOU DON'T HAVE TO SEE THEM SO YOU CAN JUST EITHER -- WELL, YOU START TO SMELL IT'S IN THERE OR LIFT THE TRAP AND KNOW IT'S HEAVIER AND YOU KNOW SOMETHING'S IN THERE AND IT GOES AWAY AND GOES IN THE TRASH.

THERE ARE WAYS TO GET AROUND IT. BUT ALSO THINK ABOUT WHERE YOU'RE PUTTING YOUR MOUSE TRAPS. NOW IN THIS PICTURE THE MOUSE TRAP REALLY ISN'T IN THE RIGHT PLACE.

IT SHOULD BE PERPENDICULAR TO THE WALL BECAUSE MICE AND RATS ARE ALWAYS GOING TO TRAVEL WITH ONE PART OF THEIR BODY UP AGAINST A WALL BECAUSE THEY HAVE REALLY, REALLY GREAT SENSES OF SMELL.

LOUSY EYESIGHT.

SO THEY NEED THE OIL FROM THEIR BODY TO GUIDE THEM TO THEIR HOMES.

SO YOU'RE GOING PUT THE TRAPS

PERPENDICULAR.

THE ONE THING YOU NEED TO KNOW IF YOU'RE WORKING WITH MOUSE TRAPS YOU WANT TO SET THEM RIGHT AWAY.

IF YOU'RE DEALING WITH RATS, RATS ARE SMARTER AND MORE CURIOUS THAN MICE.

SO YOU ACTUALLY WANT TO PUT THE RAT TRAP OUT UNSPRUNG FOR THREE DAYS SHOW RATS GET USED TO SEEING IT.

THEY GET USED TO GOING OVER IT AND THEN ON THE FOURTH DAY SET THE TRAP WITH THE PEANUT BUTTER AND THAT WILL CATCH THE RATS.

SO YOU HAVE TO GIVE IT A TIME

DELAY.

YOU DON'T WANT TO USE THE  
POISONS BECAUSE AGAIN YOUR MOUSE  
OR RAT IS GOING TO CLIMB INTO  
THE WALL AND DIE WHICH YES, HE  
IS THE WHOLE POINT BUT IT'S  
GOING ATTRACT THE DERMESTIDAE  
BEETLES.

THE MOUSE OR RAT CAN GET STUCK  
AND RUN AROUND WITH IT STUCK TO  
THEM.

AGAIN, SOMETHING THAT'S NOT  
REALLY PLEASANT AND THEN EVEN  
LESS PLEASANT IS WHEN HAVE YOU  
STICKY TRAPS OUT FOR INSECTS  
PESTS AND YOU CATCH BATS IN THEM  
WHICH I HAVE DONE AND THAT'S NOT  
PLEASANT EITHER.

THERE'S NOT A LOT YOU CAN -- SO  
THE ROLLED OATS WITH DRY PLASTER  
SEEMS LIKE A GOOD IDEA BUT AGAIN  
WHERE ARE THEY GOING WHEN THEY  
DIE BECAUSE IT'S THAT CARCASS WE  
REALLY DON'T WANT KICKING  
AROUND.

THE FIVE-GALLON BUCKETS WITH  
WATER I'VE HAD THAT ON HAND WHEN  
I'VE TRAPPED THEM AND THEY'RE  
NOT QUITE DEAD IN THE TRAP AND  
YOU DROWN THEM AND THEN THROW IT  
AWAY.

SO IF YOU'RE ONLY CATCHING WITH  
TRAPPING YOU'LL BE CATCHING AND  
RELEASES AND CATCHING AND  
RELEASING THE SAME MICE OVER AND  
OVER AGAIN.

BE AWARE OF THAT AND ACTUALLY  
REALLY TAKE THE STEPS TO TRY TO  
FIGURE OUT HOW THEY'RE GETTING  
IN IN THE FIRST PLACE.

CAUSE IF YOU CAN BLOCK ALL OF  
THOSE YOU MIGHT NOTICE YOU'RE  
NOT CATCHING NEARLY AS MANY AND  
THAT MIGHT BE EVEN THE BETTER  
THING DO IS TO JUST NOT LET THE  
MICE IN IN THE FIRST PLACE.

GOOD HEAVENS, JANINE IN NEW

YORK.

HOW BIG ARE YOU GROWING YOUR  
MICE IF YOU NEED THE TRAPS.

GOOD HEAVENS.

SO THERE'S A LOT OF OPTIONS FOR  
TRAPPING BUT REALLY SOMETIMES  
YOU JUST WANT TO KEEP TO THE  
SIMPLEST THINGS BECAUSE FOR OUR  
PURPOSES IN LIBRARIES, ARCHIVES  
AND MUSEUMS WE DON'T WANT THE  
CARCASSES AROUND BECAUSE THEY  
WILL ATTRACT THE OTHER PESTS.

SO, DEAR, SORRY, I'M READING  
SOME OF THESE MOUSE TRAP  
EXPERIENCES.

SO WHAT I'M GOING DO NOW IS GIVE  
YOU ALL A POP QUIZ.

I'LL TAKE A COUPLE LOOKS AT THE  
QUESTIONS AND WHILE YOUR  
ANSWERING THE QUIZ SO -- I MIGHT  
JUST HAVE TO GET THE CHAT  
SECTION THE WHOLE CHAT SECTION  
TODAY BECAUSE SOME OF THESE  
MOUSE STORIES ARE SAD AND  
DISGUSTING AND INFORMATIVE ALL  
AT THE SAME TIME.

THEN THERE'S OPOSSUMS.

OPOSSUMS AREN'T SOMETHING I'VE  
HAD TO DEAL WITH AS MUCH BUT  
WE'RE GETTING MORE AND MORE OF  
THEM.

WE WANT TO THINK ABOUT THAT.

OKAY.

GOOD.

MOST OF YOU ARE HAVE GOTTEN TO  
THE POINT WHERE YES, WE KNOW THE  
ANSWER IS ALL OF THE ABOVE.

THAT REMINDS ME, ONE OF THE  
OTHER STRATEGIES WE CAN USE AT  
THE VERY BEGINNING IS TO  
DISCOURAGE THE PESTS IS TO  
ISOLATE AND INSPECT ANY INCOMING  
COLLECTIONS.

SO WHAT YOU WANT TO DO EVEN IF  
YOU JUST HAVE A CLOSET WITH A  
COUPLE STICKY TRAPS.

PUT THEM IN THERE TO CHECK YOUR

COLLECTIONS.

IF YOU'RE GETTING DONATIONS IN FROM OTHER PEOPLE AND DON'T KNOW WHERE THEY'RE COMING FROM THE EASIEST THING YOU CAN DO AS YOUR VERY FIRST STEP IS TO TAKE ALL OF THE COLLECTIONS OUT OF THE BOXES THEY'VE BROUGHT THEM TO YOU IN, PUT THEM INTO NEW BOXES AND IMMEDIATELY DISCARD THE DONATION BOXES BECAUSE FOR MOST OF US THAT IS WHERE A LOT OF OUR INSECT PESTS ARE GOING TO BE INTRODUCED.

IT'S NOT NECESSARILY IN THE COLLECTIONS BUT IT'S IN THE BOXES.

SO ISOLATE AND MONITOR YOUR INCOMING COLLECTION EVEN IF IT'S JUST A CLOSET OR A METAL COAT CLOSET THINGS WILL WORK REALLY WELL WITH A STICKY TRAP INSIDE AND THAT'S GOING TO JUST GIVE YOU AN IDEA OF WHETHER OR NOT YOU ARE BRINGING ANYTHING IN. BUT AS A GENERAL RULE WHEN YOU GET DONATIONS IN, CHANGE OUT THE BOXES AS SOON AS POSSIBLE.

THAT'S WHERE YOUR BIGGEST PROBLEM IS GOING TO COME.

IF YOU FIND YOU START TO HAVE PROBLEMS WITH PESTS.

WHAT CAN YOU DO?

CALL YOUR FACILITIES PERSON TO SEE HOW THEY MAY BE COMING IN AND YOUR FACILITIES PERSON IS USUALLY THERE THE PERSON WITH CONTACT WITH ANY SORT OF EXTERMINATOR AND CONTACT YOUR CONSERVATOR BECAUSE THEY NEED TO KNOW WHAT THEY NEED TO DO.

IF YOU DON'T HAVE ONE ON STAFF GET ZIPLOC BAGS OR LARGE POLY ETHYLENE SHEETING AND ISOLATE THAT ITEM.

YOU WANT TO CLEAN THE AREA THAT YOU'VE SEEN THE PESTS AND LOOK

FOR ANY OTHER DAMAGED ITEMS.  
SO IF YOU'VE GOT MOTHS FLYING  
AROUND AND FIND ONE BOX OF  
TEXTILES WITH CLOTHES MOTHLARVAE  
IN IT AND LOOK AROUND AND IF YOU  
HAVE ONE BOOK WITH COCKROACH  
DAMAGE LOOK AT THE OTHER BOOKS  
ROUNDING IT.

TRY TO DETERMINE IF AND WHERE  
AND HOW IT HAPPENED.

THERE'S REALLY NO ONE SINGLE  
SOLUTION FOR ANY OF THIS.

IT'S ALL GOING TO DEFEND.

IT'S ALL IN THE EVALUATION AND  
TALKING TO THE PROFESSIONALS AND  
THIS IS WHERE THE PEST LIST  
COMES IN HANDY.

YOU WANT TO DOCUMENT ANY EVENT  
THAT YOU HAVE IN TERMS OF WHAT  
PESTS YOU HAD, WHERE THEY WERE  
LOCATED, WHAT COLLECTIONS WERE  
DAMAGED, HOW THEY WERE DAMAGED  
AND WHAT TREATMENT WAS GIVEN.

YOU CAN HAVE MORE INFORMATION IF  
YOU HAVE A SIMILAR PROBLEM IN A  
SIMILAR AREA.

SO THAT YOU'RE NOT LOOKING AT  
CERTAIN COLLECTION MATERIALS AND  
GOING OH, WE HAVE DAMAGE.

WE MUST HAVE A PEST PROBLEM AND  
IT'S OLD PEST DAMAGE AND THEN  
ALWAYS MONITOR.

YOU REALLY WANT TO THINK ABOUT  
ISOLATING ANY SORT OF INFESTED  
OBJECTS IMMEDIATELY EITHER BY  
PUTTING THEM IN A ZIPLOC BAG OR  
WRAP THEM UP IN POLYETHYLENE  
SHEETING.

YOU DON'T WANT GAPS.

THEN YOU WANT TO SEPARATE THE  
ITEMS THAT CAN BE FROZEN FROM  
THOSE THAT CANNOT.

FREEZING IS ONE OF OUR BEST  
OPTIONS.

SO IF YOU HAVE SMALL ENOUGH  
MATERIALS THAT CAN GO INTO A  
FREEZER AND THIS IS REALLY GOING

DEPEND ON WHAT SORT OF FREEZER ACCESS YOU HAVE BECAUSE IF IT'S JUST A CHEST FREEZER YOU'RE LIMITED IN SIZE.

IF HAVE YOU ACCESS TO A WALK-IN FREEZER THAT'S A DIFFERENT STORY.

WHAT YOU WANT TO THINK ABOUT EVEN IF YOU JUST HAVE A HOME CHEST FREEZER YOU CAN HAVE ACCESS TO IS TO USE THE MATERIALS DOWN TO 20 MINUS FAHRENHEIT A FEW TIMES A WEEK DEPENDING ON THE SIZE AND DENSITY OF THE ITEM.

YOU WANT TO BRING THE CORE OF THAT ITEM TO AS CLOSE TO MINUS 20 FAHRENHEIT WE CAN GET. WE WANT TO KEEP IT THERE FOR 48 HOURS.

IF IT'S SMALL, 48 HOURS IS ENOUGH.

IT MIGHT TAKE A COUPLE DAYS TO GET THE CORE DOWN AND YOU WANT TO BE SURE THAT YOU ARE GETTING THAT CORE TO THE FREEZING ESPECIALLY IF YOU'RE TRYING TO DEAL WITH SOMETHING LIKE THE WOOD BORING BEETLES.

YOU'RE GOING LET IT THAW FOR AT LEAST 24 HOURS.

PROBABLY MORE.

IS NOT A BAD IDEA.

WHEN IT'S GOTTEN REACCLIMATED TO ROOM TEMPERATURE YOU'RE GOING REFREEZE IT AGAIN FOR HOWEVER LONG YOU FROZE THE FIRST TIME.

SO WHAT YOU'RE DOING IN THIS FREEZE-THAW-FREEZE CYCLE IS YOU ARE KILLING THE ADULTS AND THE LARVAE IN THAT INITIAL FREEZING STAGE.

YOU'RE NOT KILLING THE EGGS AT THAT STAGE BECAUSE THE EGGS ARE AMAZELY RESILIENT AND WILL GO INTO DORMANCY.

YOU WANT TO MAKE SURE YOU GET

THE EGGS AS WELL.  
SO THEN WHAT YOU DO IS YOU THAW  
IT IT'S GOING MAKE THE EGGS  
THINK IT'S SPRING AND HATCH AND  
THEN YOU WANT TO FREEZE AGAIN.  
YOU WANT TO DO THE  
FREEZE-THAW-FREEZE CYCLE.  
SOMETIMES IT TAKES A COUPLE  
GO-ROUNDS BECAUSE YOU DIDN'T  
QUITE GET IT COLD ENOUGH OR  
LEAVE IT LONG ENOUGH BUT THIS IS  
SOMETHING YOU CAN WITH SOME  
GUIDANCE DO ON YOUR OWN AND IT'S  
A GREAT WAY TO DEAL WITH PESTS  
IN TEXTILES AND FURS AND BOOKS.  
IT'S OUR PREFERRED WAY BECAUSE  
IT'S NOT AS DAMAGING.  
FURNITURE GETS TRICKY SO FOR  
THOSE THAT HAVE ACCESS TO IT,  
FOR FURNITURE AND THREE  
DIMENSIONAL MATERIALS AND  
COMPOSITES AND THINGS LIKE THAT  
THE PREFERRED WAY SO TO USE  
CONTROLLED ATMOSPHERES.  
CARBON OXIDE OR OXYGEN  
SCAVENGERS.  
YOU'RE REMOVING THE OXYGEN AND  
KILLING THE PESTS THAT WAY.  
DEPENDING ON WHERE YOU ARE IN  
THE COUNTRY A LOT OF THE LARGER  
MUSEUM AND HISTORIC SOCIETIES  
HAVE CO2 CHAMBERS.  
FOR KNOWS IN NEW ENGLAND THEY  
HAVE A NEW CO2 CHAMBER THEY RENT  
OUT AND LET PEOPLE PUT THINGS IN  
AND ASK AROUND IN YOUR AREA TO  
FIND OUT IF ANYBODY HAS ONE OF  
THESE YOU COULD HAVE ACCESS TO  
IF YOU HAVE PROBLEMS.  
I WOULD START WITH YOUR STATE  
AND WORK FROM THERE BECAUSE  
THEY'RE THE MOST -- YOUR STATE  
MUSEUM PROBABLY IS GOING TO KNOW  
MORE ABOUT WHAT YOU HAVE IN YOUR  
SPECIFIC STATE.  
THE CONTROLLED ATMOSPHERES WORK  
LIKE THE FREEZING AND KILL THE

PESTS WITHOUT ANY SORT OF  
PESTICIDES OR FUMIGATION  
TECHNIQUES.

SOMETIMES THE ONLY WAY YOU CAN  
DO PEST ERADICATION IS WITH  
PESTICIDES OR FUMIGATION BUT  
THIS IS THE ONLY -- ONLY YOUR  
LAST RESORT BECAUSE THE  
PESTICIDES ARE DAMAGING TO YOUR  
COLLECTIONS.

THEY ARE DAMAGING TO YOU.  
THEY'RE DAMAGING TO THE  
ENVIRONMENT.

AND SO WE REALLY WANT TO  
THINKING ABOUT WHAT WE CAN DO TO  
AVOID DOING THIS AND THAT'S WHY  
WE THINK ABOUT THE INTERGRATED  
PEST MANAGEMENT.

WE'RE GOING USE FREEZING OR  
CONTROLLED ATMOSPHERES IF WE DO  
HAVE PESTS BUT WE'RE GOING TO DO  
EVERYTHING WE CAN TO PREVENT  
THEM FROM COMING IN IN THE FIRST  
PLACE.

SO YOU REALLY WANT TO BE  
THINKING ABOUT THOSE SORTS OF  
THINGS AND IF YOU DO NEED TO DO  
A FUMIGATION FOR HEAVEN'S SAKES,  
ONLY PROFESSIONALS.

SOME OF YOU MAY HAVE LEFTOVER  
DIMEL CHAMBERS OR SOMETHING.  
PLEASE DON'T USE THEM.

IT'S REALLY NOT THE BEST IDEA  
FOR YOUR HEALTH.

AGAIN HELP, RESOURCES AND IF YOU  
THINK YOU MIGHT HAVE PEST  
PROBLEMS IN THE FUTURE OR JUST  
INTERESTED IN BUGS, SIGN UP FOR  
IT.

IT'S A GREAT LIST AND THEY HAVE  
WONDERFUL, WONDERFUL  
KNOWLEDGEABLE PEOPLE ON THERE.  
INSECTS LIMITED BOTH AS A STORE  
WHERE YOU CAN BUY SOME OF THESE  
STICKY TRAPS AND SUCH BUT ALSO  
FOR THEIR INFORMATION.

THEY'VE GOT A LOT OF GREAT

RESOURCES AND THEN THE SMITHSONIAN HAS A REALLY GOOD ARTICLE ON MUSEUM PESTS FOR YOU TO ENCOUNTER.

SO EVEN THOUGH IT DIDN'T LOOK LIKE I HAD NEARLY AS MANY SLIDES, GET ME ON BUGS AND I CAN'T STOP TALKING.

I'M GOING TAKE QUESTIONS NOW AND IF KRISTEN CAN --

>> I'VE PULLED SOME ASIDE.

WHAT ABOUT -- WE GOT TO FUMIGATING BUILDINGS I THINK I THINK YOU TALKED ABOUT ABOUT ISOLATING A COLLECTION.

>> SO IF YOU ARE GOING TO ISOLATE YOU WANT TO KEEP IT IN ISOLATION FOR A WEEK WAS IT'S GOING TO GET EVERYBODY UP AND MOVING AROUND AGAIN.

SO IN SOME SORT OF CLOSED AREA YOU CAN PUT STICKY TRAPS OR EVEN IF YOU DON'T HAVE A LOT OF TIME, JUST TAKE EVERYTHING OUT OF THE BOX AND AS YOUR TAKING IT OUT OF THE BOX HAVE A BIG WHITE SHEET JUST A COTTON SHEET AND KIND OF SHAKE THINGS OUT GENTLY TO SEE IF ANYBODY FRASS FALLS OUT AND THAT'S GOING TO BE A REALLY GOOD INDICATOR.

SO THERE'S A LOT OF LITTLE THINGS LIKE THAT YOU CAN DO IT COMES DOWN TO LOOKING.

THINGS TO THINK ABOUT.

CEDAR CHIPS TO USE --

>> CEDAR CHEST?

>> OR A CEDAR CHEST.

IT WORKED FOR YEARS BUT THE REASON IT WORKS IS THE OIL IN THE CEDAR SO IF YOU'RE GOING USE THEM YOU NEED TO WRAP YOUR TEXTILES IN MANY LAYERS OF ISSUE TO MAKE SURE THE OIL DOESN'T PENETRATE AND ALWAYS CHECK THE TISSUE FOR SIGNS OF OIL LEECHING OUT.

YOU WANT TO AVOID CAUSING ONE PROBLEM BY TRYING TO PREVENT ANOTHER.

>> WHAT ABOUT MOTH BALLS.

>> BOTH BALLS ARE TWO OF THE VOLATILE ORGANIC COMPOUNDS THAT CAN CATALYZE THE DEGRADING AND IT TAKES FOREVER TO GET THE SMELL OUT SO THEY'RE NOT REALLY A GREAT OPTION.

ANOTHER HISTORIC METHOD OF KEEPING THE MOTHS AWAY IS ACTUALLY LAVENDER.

I TEND TO TELL PEOPLE TRY THE LAVENDER BEFORE YOU TRY THE MOTH BALLS BECAUSE IT SMELLS BETTER BUT AGAIN MAKE SURE THAT YOU'RE NOT HAVING THE LAVENDER IN CRICKET CONTACT WITH THE COLLECTIONS MATERIALS BECAUSE IT DOES GET GUSTY WHEN IT STARTS TO BREAK DOWN.

>> WHAT ABOUT -- YOU SAID IT.

>> AND THAT'S GREAT FOR THE CREEPY CRAWLIES.

SO LIKE SLUGS AND THINGS LIKE THAT.

IT WON'T CATCH EVERYTHING SO MONITOR IT AND WATCH IT AND SEE WHERE THEY ARE AND WHAT YOU'RE DOING TO PREVENT THEM FROM COMING IN.

SO LIKE KEEPING FOOD AWAY. THE COCKROACHES ARE IN OUR BUILDINGS FOR THE FOOD SO IF WE CAN CUT DOWN ON THAT IT'S GOING TO KEEP THEM FROM COMING IN.

SO KATHY IN ELMHURST HAS HER INSTITUTION LEASES THEIR SPACE AND HAS AN OPERATING FOOD-BASED BUSINESS BESIDE THEM.

A, ONE WOULD HOPE THE FOOD-BASED BUSINESS IS AND OF THEMSELVES CAREFUL WITH PEST MANAGEMENT OTHERWISE THE HEALTH AND HUMAN SERVICES WOULD COME DOWN ON THEM OR WHATEVER GOVERNMENT AGENCY.

BUT YOU WILL DEFINITELY WANT TO BE MONITORING ESPECIALLY WITH STRICKY TRAPS BY YOUR DOORS AND THEN ALSO JUST BE REALLY AWARE OF WHERE THE DUMPSTER IS FOR YOUR BUILDING BECAUSE THAT WILL ALSO PLAY A BIG ROLE IN HOW YOU CAN COMBAT THE PESTS.

KATHY IN HATFIELD HAS A QUESTION ABOUT A STANDARD HOME CHEST FREEZER AND DOES IT GO AS LOW AS MINUS 20.

YOU CAN GET THEM DOWN TO ABOUT ZERO MINUS FIVE DEPENDING ON WHAT THEY ARE WHICH WILL BE OKAY BUT YOU HAVE TO LEAVE THINGS IN LONGER.

YOU CAN ALSO GET REPLACEMENT STATS TO DROP THE TEMPERATURE LOWER AND HOW YOU KNOW IS TO GET THE MIN-MAX THERMOMETER HAS IT GOES IN THE RANGE YOU WANT.

THE HOME WEATHER STATIONS YOU CAN GET GO GENERALLY LOW AND YOU CAN STICK ONE OF THOSE IN THERE AND READ WHAT YOU GET.

START IT UP AND SEE WHAT HAPPENS.

WE HAVE TARANTULAS, BOX ELDER BUGS, YEAH.

MOST OF THOSE ARE -- MOST OF EVERYTHING ELSE ARE GOING TO BE OUR INDIRECT PESTS.

WE DON'T SEE --

>> I THINK YOU ANSWERED PIPER'S QUESTIONS OF THE CYCLE IN 48-HOURS EACH.

?

AS LONG AS IT GETS DOWN BELOW ZERO THAT'S GOING TO TAKE CARE OF MOST EVERYTHING.

>> OKAY.

>> I DON'T WANT TO KEEP ANYBODY PAST 3:30 IF THEY HAVE TO GO BUT THERE'S A COUPLE LOOSE ENDS BUT WE WILL SEE YOU BACK TOMORROW FOR MOLD.

>> SO WITH BENNY, PUTTING IT IN  
A BOX AND THEN THE CEDAR CHEST  
IS FINE.

THE BOX WILL BE YOUR BARRIER.

>> OKAY.

SO SOMEONE ELSE HAD ASKED TOO  
WITH THE TEMPS OF THE FREEZER.  
HOW CAN YOU GET ACCESS TO A  
LARGER FREEZER AND I'VE HEARD IF  
YOU CAN MAKE A RELATIONSHIP WITH  
ANY KIND OF A COMMERCIAL ENTITY.  
THERE WAS A PLACE DOING PEST  
ERADICATION WITH A TRUCK SO THE  
TRUCKS YOU CAN RENT YOU CAN RENT  
ONE OF THOSE AND IT WILL WORK AS  
WELL.

OKAY.

>> ALL THE TEMPERATURES I'VE  
BEEN GIVING ARE IN FAHRENHEIT.

>> THANK YOU.

>> OKAY.

I THINK WE GOT TO EVERYTHING.  
THERE'S LOTS OF DIFFERENT BUGS  
AND I THINK THE WEBSITE IS  
HELPFUL.

>> BORIC ACID WORKS WELL FOR A  
LOT OF THE SMALLER BUGS.

>> IT'S A VERY FINE POWDER AND  
IT ATTACHES THE BUGS AND THEY  
TAKE IT BACK TO THEIR NEST BUT  
IT'S MESSY.

>> YOU JUST DON'T WANT IT COMING  
IN CONTACT WITH YOUR  
COLLECTIONS.

IT'S AN ACID SO IT WOULD DO  
DAMAGE THERE TOO.

>> OTHER NATURAL THINGS LIKE

EUCALYPTUS AND BAY LEAVES.

>> IT'S ALL IN THE QUANTITY.  
IF YOU WANT BAY LEAVES  
EVERYWHERE IT MIGHT WORK BUT  
THEN OTHER PROBLEMS WILL YOU GET  
FROM BAY LEAVES.

IT'S USED TO KEEP AWAY SPIDERS  
KICK AROUND AND THEY START TO  
DETERIORATE.

EVERYTHING WE DO IS A BALANCING ACT.

>> AND SAME THING WITH TRAPS.  
I MEAN, IF YOU HAVE A TRAP WITH PEANUT BUTTER IN IT.  
YOU LEAVE IT OUT A COUPLE DAYS

--

>> IT'S GOING TO BE WHEN YOU KNOW YOU HAVE A PROBLEM.  
YOU'RE NOT GOING TO RANDOMLY PUT OUT TRAPS AND LEAVE THEM.  
YOU ONLY PUT THEM OUT WHEN YOU KNOW YOU HAVE A PROBLEM.

>> AMY JUST ASKED A QUESTION ABOUT LARGE OBJECTS.

>> FOR LARGE OBJECTS A LOT OF TIMES WHAT YOU CAN DO IS WRAP IT IN POLYETHYLENE SHEETING WITH A LOT OF TAPE SO THERE'S NO ACCESS.

I WOULD CONTACT SCOTT CARLY -- IS HE THE ALASKA STATE MUSEUM, HE'S GOING TO KNOW JUST WHERE IN ALASKA YOU COULD GO.

NOW I KNOW GNOME ISN'T NEAR THE ALASKA STATE MUSEUM BUT HE MIGHT KNOW OF SOMEBODY AND STRANGELY ENOUGH DEPENDING ON HOW YOUR WINTER'S GOING IF YOU CAN SOMEHOW MANAGE TO JUST MAKE THE NORMAL ALASKAN WINTER BE YOUR FREEZER, THAT MIGHT ALSO WORK BUT AGAIN YOU HAVE TO BE ABLE TO MOVE IT AND PROTECT IT.

SOMETIMES WE CAN GET REALLY CREATIVE AS LONG AS WE TAKE EVERYTHING INTO CONSIDERATION.

I THINK THAT'S EVERYTHING.

>> I WILL DOUBLE CHECK THE CHAT AND MAKE SURE WE DID BUT I THINK YOU GOT IT ALL.

I WANT TO THANK THE CLOSED CAPTIONERS TODAY AND ALL OUR ATTENDEES.

WE HOPE TO SEE YOU TOMORROW AND HOPE HAVE YOU A GREAT AFTERNOON.  
AGAIN CHECK THE WEBSITE FOR MORE

INFORMATION.

>> AND THANK YOU, KRISTEN.

>> YOU'RE WELCOME.