



# The Flightline



Volume 45, Issue 6 Newsletter of the Propstoppers RC Club AMA 1042 June 2015



### President's Message

Both of the fields are in good flying order. Elywn field does have poison ivy so watch your step .I will spray after the rain. **Don't forget club Picnic June 27.**

We will need a second Rock Pick Up Day at Elwyn. This will be nothing like the first as the area between the two strips is smaller . This will help out Elywn out mowing the center of the fields. We will talk about this at the meeting.

The new field is coming along but still needs time for the grass to fill in.

We need someone to volunteer to be the club webmaster. It has been without care and updates for a long time.

Anyone with a show & tell please bring them to the meeting and will someone please take pictures for the newsletter. Hope to see you at the meeting

**Dick Seiwel, President**

### Agenda for June 9th Meeting At **At our CA Field** Flying 5pm Meeting 7pm till 8:30?

1. Show and Tell
2. Membership Report
3. Finance Report
4. Club Calendar Review
5. June Picnic Plans
6. 2015 Dues Reminder

### Minutes of the Propstoppers Model Airplane Club May 12, 2015 at the Christian academy meeting room

Call to order by VP chuck Kime took place at 7:10 PM  
Minutes of the April meeting as published were approved  
Treasurer's report by Pete Oetinger was presented to the membership

#### Old Business:

Picnic dates are set. **Saturday, June 27 at 3:00 PM to dusk to allow for lighter winds.**

Saturday August 22 with time to be determined.

#### New Business:

Elwyn Field is looking better but be careful of poison ivy particularly in the area of the new runway.  
President Seiwel received a request for a pilot to fly a hexacopter for the Toby forms school project. This is an earth science project that involves a flying lab. He has contacted several perspective candidates.

The membership suggested that the June meeting take place outdoors at the Christian academy field with indoors as backup in case of bad weather.

#### Show And Tell:

Eric Hoffberg showed tower hobby electrical connectors that are compatible with the Dean's connector that has a built in insulator to cover the solder connection.

Mick Harris showed a Red Wing senior rubber model of 18 inch wingspan. He scratch built it for indoor flying.

He also showed a junior series rubber biplane of 10 inch span. Both were covered with tissue and are similar to the original models.

Brian Williams showed a quadcopter Dromeda Ominus that seems very resilient. It is about 15 inches across and has survived a number of collisions without damage.

Adjournment took place at 7:48 PM

#### INSIDE THIS ISSUE

1	<b>President's Message</b>
1	<b>May Meeting Minutes</b>
1	<b>June Meeting Agenda</b>
2	<b>Elwyn's New Runway Status</b>
3	<b>Eric Does Gyrocopter III</b>
5	<b>Drexel University SAE Aero Design Activity</b>
11	<b>World's First Manned Tricopter</b>
12	<b>Wild RC's new models from RoutanRC</b>
17	<b>Bird Watching on Cape Cod</b>
20	<b>Dues Reminder</b>

## Calendar of Events

### Club Meetings

Monthly Meetings

Second Tuesday of the month.

Gateway Community Church at the Christian Academy. Doors open at 7:00

**Next Meeting; 9<sup>th</sup> June At the Field**

Tuesday Breakfast Meeting

Tom Jones Restaurant on Edgemont Avenue in Brookhaven. 9 till 10 am. Just show up.

Flying after in the summer at CA or Elwyn Field 10 am. Weather permitting.

Indoors at the Brookhaven Gym in bad weather 10:30-11:30 See dates allowable.

### Regular Club Flying

**At Old Christian Academy; Electric Only**

Monday through Friday after school till dusk

Saturday 10 am till dusk

Sunday, after Church; 12 pm till dusk

At Elwyn Field; Gas or Electric

Monday through Saturday 8 am till dusk

Sunday 12 pm till dusk

INDOOR Flying, see attached dates.

### Special Club Flying

**Club Picnic Saturday 27<sup>th</sup> June**

Saturday mornings 10 am

Wednesday Helicopter evening in summer

Thursday evenings in the summer

Tuesday mornings 10 am weather permitting after breakfast.

Check our Yahoo Group for announcements;

<http://groups.yahoo.com/group/propstoppers/>

### Beginners

Beginners using due caution and respecting club rules may fly Apprentice or similar models without instructors at Christian Academy Field.

The club also provides the AMA Introductory Pilot Program for beginners without AMA insurance.

## Elwyn's New Runway for Evening Flying



The grass is coming in nicely but there is a rampant crop of Poison Ivy in the rough to the right of the strip. President Dick Seiwel plans to treat this area and this is important because the right hand side is where we must site the pits and pilot area in order to keep the sun behind us in the evenings. The long grass clump on the strip is a low point that the Elwyn staff plan to fill.

Dick also plans a second Rock Picking Day, or hour or so, in the area to the left in this picture, between the two strips. This will help the Elwyn staff in mowing the rough areas outside our strips, which we maintain.

## Propstoppers RC Club of Delaware County, Pennsylvania.

### Club Officers

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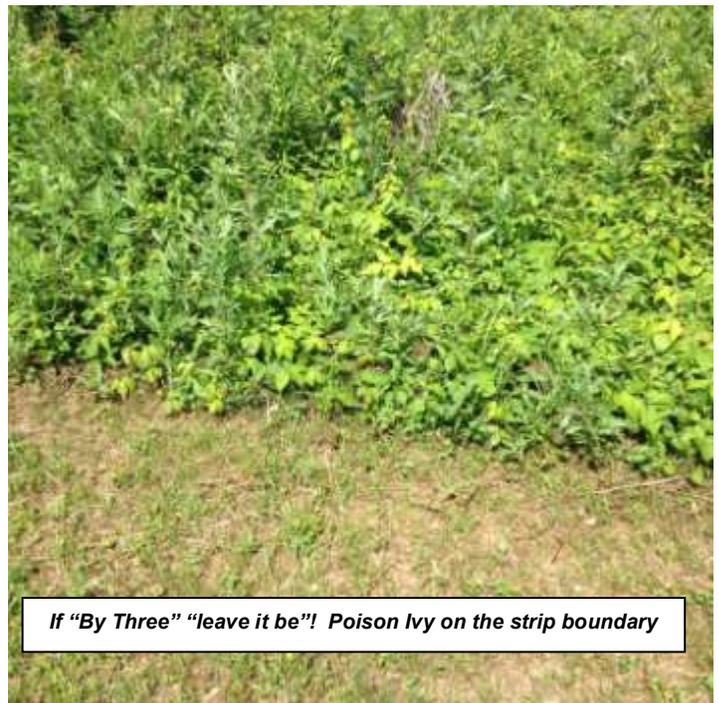
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If "By Three" "leave it be"! Poison Ivy on the strip boundary



Eric Hofberg and the guys have been flying up a storm with new models on nice mornings at Elwyn Field. After Tuesday breakfast is a regular occasion but when the weather looks good the call goes out.



## Drexel University SAE Aero Design Team Finally Fly.

Chuck Kime and your Editor have been supporting the University SAE Aero Teams for some years as reported in these columns. Dave Bevan has been doing it for over 25 years!

Well, Widener decided not to participate any more. We don't know the reason but it seems this activity has a far greater scope of challenge, commitment and finances that any other Senior Project.

So, what do you do when your favorite activity gets a time out? Well, you seek out another field.

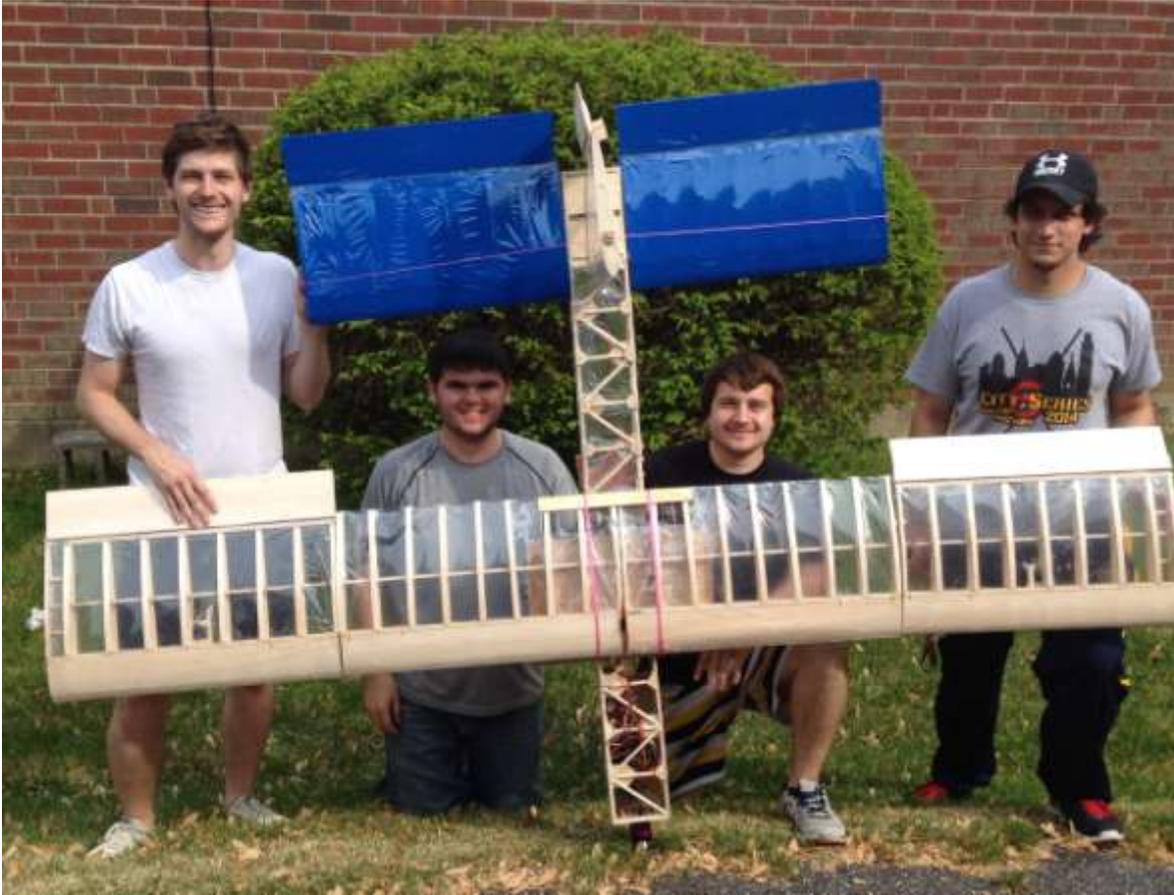
Last year when Chuck and I (and Tina) went with the Widener team to Atlanta we saw among the Global competitors a rather sorry looking airplane with Drexel University on the wing. So we sought out the Professor responsible for these projects and he welcomed our support with open arms.

Unfortunately their 2014/15 team formed up late and found themselves on the wait list for flying in either East or West Coast locations. Nevertheless, with the professor's encouragement they proceeded with the project hoping for some no-shows to open up the field. This didn't happen but they were encouraged to complete the project as a purely internal Drexel activity. These projects count as a learning activity, which they should, and are scored for credit against their final GPA.

Despite a great kick-off meeting (at the Dandelion Pub on 18<sup>th</sup> street) progress was exceedingly slow. Indeed there was very little to show at all, much less any engineering. But with three weeks to go they finally set about building a model. Chuck and I, and the professor were dubious of any success, but with a little over a week to go we had a meeting where they asked for some help with equipment etc. and on the Friday before their Tuesday final briefing they declared they would be ready to fly on the weekend. So we invited them to come out to see what we could do to help.



Here is the team with their model after some tweaks.



There were many problems that required attention and we worked all day sorting through them. Here is the Technical Inspection Report I provided the next day to support the preparation of their final briefing.

***Technical Inspection.***

The team brought the model and support equipment to the undersigned's house and shop.

The model was partially assembled and offered for inspection on a work stand. It was weighed at a little over 11 pounds and the CG measured.

***Findings and Actions;***

**CG.** The CG was found to be approximately three inches aft of the wing quarter chord, the ideal location for initial test flying. The wing was bolted to a ply plate, which in turn was glued to the fuselage top longerons. It was determined that the wing could be moved about two inches aft where it could be secured using two of the four bolts.

37 ounces of lead sheet was taped to the forward fuselage to achieve the desired CG location.

**Wing Attachment.** The wing has been aerodynamically designed to achieve level flight at a gross weight of 38 lb. Consequently, should the flight speed in an inadvertent dive (possibly due to aircraft instability or handling problems in early flights) increase by only 40% the lift in a full pull-up would be in the order of 80 lb. At this load the wing attachment was considered unsatisfactory. The solution was to lash the wing to the fuselage with multiple strands of strong twine. This is a satisfactory solution.

At the time these issues were addressed the wing incidence and decalage were examined. We noted that the landing gear arrangement aligned the fuselage at a few degrees nose up while on the ground. The wing mount as provided was also at a small positive incidence. It was decided to increase the wing incidence a few degrees for two reasons; first, it was considered that a "no rotation" takeoff was desirable for first flight, and second, this would have a greater chance that the decalage; built-in or with up elevator, would closely match the flight trim condition. (Fewer surprises after takeoff)

**Outer wing panel attachment.** The outer wing panels are attached to the wing center section via a bass wood bade inserted between the spars. The design as presented had such blades at about ½ inch depth, half of the

possible pocket between the wing spars. This resulted in a very sloppy attachment and possible strength problems. The solution was to open up the pockets to full spar depth and fabricate new close fitting joiners. In addition both inner and outer sockets were lashed with fine Kevlar thread to take the “pry open” loads experienced in such joiner assemblies. This is a safety belts and suspenders approach to insufficient design and attachment of the spar shear webs. Indeed one such critical shear web adjacent to the joiner was completely missing of any adhesive.

The second problem was no physical method to restrain the pitch angle of the outer panel. The plan to use only adhesive tape was considered inadequate. Consequently locating dowels were fabricated and fitted such that they penetrated both inner and outer panels effecting a solid alignment.

This same solution was applied to the horizontal tail halves where they match the fuselage.

**Vertical Fin attachment.** The vertical fin was attached to the fuselage via two vertical bolts penetrating the 3/32 inch thick balsa root rib. This was considered inadequate so a fix was effected by adding small ply plates to the end ribs of the horizontal tail and the tip of the vertical. These were connected by a piece of twine fastened to each ply plate via a small screw.

**Control Surface hinge attachment.** The elevator and aileron surfaces were hinged to the tail and wing panels via adhesive tape top and bottom. This is a satisfactory method of attachment but the execution resulted in a large area of just tape between the two surfaces allowing vertical motion in addition to the hinge action. The surfaces were re-taped with a satisfactory alignment.

**Servo to Control Surface Links.** These links had not been attached prior to this day so much time was taken to ensure the links were properly attached and the servo to surface geometry allowed for the desired control travel. The results were satisfactory and controls deemed ready to go.

**Motor , battery and ESC.** Due to a failure in one of the planned power batteries a new battery was prepared with matching connectors and charged. Motor testing was satisfactory.

**Landing gear.** The tricycle landing gear had no control for steering so it was essential to determine if the airplane would track straight and stay on the runway during the takeoff run. Several push and roll trials suggested it was satisfactory. However it was decided to make a trial taxi test with the full-up airplane configuration power on.

The first short run proved satisfactory so a second longer run was conducted. In execution the power was maintained a little too long and the aircraft became airborne, whereupon power was chopped but the airplane ran into a curb causing substantial damage to forward and aft fuselage. However this was satisfactorily repaired and the aircraft deemed safe to fly.





### ***Flight Test Report***

The conditions were deteriorating as it was getting dark and beginning to rain. However, the team needed a flight to conclude the program so we repaired to the local flying site.

On arrival the outer wing panels were assembled and the airplane ready for flight. Lightning flashes appeared in the distance.

### **Flight Test Plan.**

The objective of the flight test was to demonstrate the airplane was capable of powered stable and controllable flight.

There was clearly only time for one attempt and the next day weather forecast was for rain and thunder storms, so this would be the only attempt.

Given more time a series of simple hops would be taken before a full flight. The pilot told the team that a full up flight would involve considerable risk of an adverse ending. The team elected to go for it anyway.

The flight plan therefore was for a straight away full power takeoff followed by a climb to altitude clearing any obstacles (trees surround our field on three sides. Takeoff was to the fourth direction so clear). During this climb trim would be attempted and control examined.

The next step would be to execute a 180 degree turn, reduce power and land back on the runway in the opposite direction.



## The Flight

The small wheels on the main gear had sunk completely into the wet grass but the larger nose wheel seemed buoyant and on application of full power the model slowly moved at first but quickly got up “on the step” and took off smartly. The climb out was uneventful as the airplane proved stable and in trim. No significant control input was required to maintain the straight climb out.



It continued to climb on full power whereupon the planned 180 degree turn was initiated. The model responded normally to aileron input and slight up elevator to maintain level. However the nose dropped somewhat and by the time the 180 degree turn was completed the nose had dropped into a shallow dive and speed increased. The pilot chopped power and initiated a pull-up intended to achieve level flight. However the model did not respond and continued in the dive until it struck the perimeter fence and the ground. Damage was extensive. However, the aircraft remained complete and intact up to the point of impact, validating that the structure was satisfactory for the flight envelope demonstrated during this flight.

### Possible Causes.

Loss of up control is not unusual in models with controls configured such that the elevator push rod is in compression during a pull up. It is often caused by push rod buckling. This is not to say push rods in compression are a bad design, only attention must be paid to the buckling strength of the push rod.

The Drexel airplane has fairly long thin steel pushrods between servo and control surface. In hindsight the Tech Inspectors should have examined this factor, but they didn't.

### Conclusion.

The flight test demonstrated the Drexel airplane was stable and controllable and structurally adequate for the flight envelope demonstrated. As expected, the flight performance at the empty flight weight was sparkling. No

opportunity was available to examine the payload carrying performance. The team expressed their satisfaction in this flight.

**After Action and Final Briefing.**

Surprisingly, the team were ecstatic with the flight. It validated their project up to the point of control loss and even with the probable cause there were engineering lessons, and that is the point of these projects.

They took all this late material and made an excellent final briefing, which was observed by Chuck and I.

To put perfect book ends on the project they invited us for drinks, this time at a Mexican Bar on the Penn campus.

Mission Accomplished. Bring on Next Year's Team. Oh, yes, recognizing the SAE Aero Design project has a considerable scope the professor has organized an SAE Aero Club to involve underclassmen, and women, in this project. Only the Seniors may actually participate in the Competition but underclassmen can learn in preparation for their turn.

***Dave and Chuck.***





<http://www.dailymail.co.uk/sciencetech/article-3102985/Star-Wars-speeder-bikes-come-step-closer-reality-Personal-skytrike-takes-skies-manned-test-flight.html>

## **Wild RC Announces radical New Models From RutanRC**

Eric Hofberg received the following offer by email.



### **Help RutanRC Launch its New RC SpaceShipOne**

To all my IFO customers,



You all know me as Dan Kreigh of Wild R/C, who originally brought you the IFO. I've teamed up with Jeff Corsiglia, who headed product development for Air Hogs®. With the blessing of my old boss, **Burt Rutan**, described by Newsweek as "the man responsible for more innovations in modern aviation than any living engineer", we

have formed a company to develop, manufacture and market RC models of Burt's innovative aircraft designs. The company is called **RutanRC™** and we plan to design, and build for our fellow RC enthusiasts, the most innovative, radical and revolutionary RC model aircraft ever created.

To get our new planes off the ground, we have launched a campaign on Kickstarter to raise the funds needed for final development and manufacturing of our first models. These will be the historic

**SpaceShipOne™**, which completed the first manned private spaceflight ever and won the \$10 million Ansari X Prize and the White Knight, the amazing aircraft that launched SpaceShipOne into space. In the Kickstarter video, you will see test flights of several of our prototypes.



To realize our goal **we need your help**. Please visit our Kickstarter campaign by clicking <http://kck.st/1OP49NN> If you like what you see, you will have a chance to make a pledge and **reserve you very own SpaceShipOne and White Knight combo** at a fraction of the price it will be when released later this year.

Thank you for your support. Please share this with your friends and on Facebook or with anyone who loves RC stuff!,

Happy Flying, Danno

For those of you who have followed these pages for some years will know I worked with Dan Kreigh on several projects with Rutan's Scaled Composites. Indeed, I was invited and attended the Roll Out of Space Ship One and the White Knight.



Here is another friend, White Knight project engineer Cory Bird at the Roll Out.



And here is a picture of Burt showing the White Knight and Space Ship One assembly to one of his heroes, NASA's Max Faget, designer of the Mercury capsule. [http://en.wikipedia.org/wiki/Maxime\\_Faget](http://en.wikipedia.org/wiki/Maxime_Faget) Burt was impressed with Max's approach to use a very high drag configuration for re-entry from space as a means of rapidly reducing the re-entry speed thereby minimizing the thermal energy to be absorbed when transiting through the atmosphere. Burt's Space Ship One "de-thermalized" configuration achieves this too.





This approach is also used on the commercial space venture Virgin Galactic.



The original concept was developed through models built by Dan Kreigh and launched from the control tower at the Mojave Airport. This approach was used on many of Burt's unusual designs.

The AMA has recognized Dan and his work in a recent news release.

*Dave*



## SpaceShipOne Test Model Coming to National Model Aviation Museum



Dan Kreigh of Scaled Composites and RutanRC has loaned a RC test model of SpaceShipOne to the National Model Aviation Museum. Dan designed and built the test model to help Burt Rutan demonstrate the re-entry feathering concept. Burt had Dan fly the RC test model for all the SpaceShipOne test pilots to instill confidence that the feathering concept would work.

*"These models were significant tools in the development of some of the most unique and historically significant full-scale aircraft ever built and will join those currently on loan from NASA Dryden. For the general public, the role model aircraft play in full-scale aircraft research is often overlooked, and the museum looks forward to telling this story,"*

said Museum Director Michael Smith.

Not only is this RC test model of historical significance, it is the predecessor to the SpaceShipOne RC model now available through the RutanRC Kickstarter campaign. [You have until Monday, May 25 to order your SpaceShipOne with White Knight RC models for \\$169.](#)



## ***Bird Watching on Cape Cod***

By Larry Woodward

Bird watching is a favorite pastime of both residents and guests alike here on Cape Cod. Annual migration routes and favorable habitats bring millions to this area each year to watch, and to be watched. So, with my efforts to find RC flying sites and companions leading nowhere, I decided to try a new interest.

I knew what I was looking for, and yes, I knew it to be a rare species. But, surely with all the varied forms of nature commonly found here I would be able to site at least an occasional specimen.

I started, where else, on the internet. You Tube yielded a number of videos of my quarry along the beaches of Cape Cod, both in the air and on the sand. By tracing back to the video's origin I was able to email a few of the photographers and ask them where the sightings took place. By reply I learned that my species was known to be found all along the coastline, but is most concentrated along the Outer Cape beaches where the winds blow steady off the ocean. I had my starting point.

Local folks here are friendly and always ready to help a neighbor, so I made a point to ask everyone I saw, at the grocery store, the hardware store, the gas station, if they knew of others in town that shared my interest and might be able to help me. Slowly, I began to pick up helpful bits of information. It was a puzzle with new pieces revealed one at a time.

Eventually the picture became clear enough to warrant a field trip. I had been told of sightings by multiple individuals. They were not common place, but there was definitely a population here. As would be expected, the population grew larger in the summer, as migration patterns suggest, but I was heartened to hear that there were sightings throughout the year, indicating a viable resident population. The consensus was that my best chance of spotting them was along the southern coastline of Massachusetts Bay, most particularly at Crosby Landing Beach in the town of Brewster.



Excited, I called the Brewster Town Hall and asked if they knew anything about the Crosby Beach population. The town secretary assured me that yes, they were common on that beach. She herself walked the beach early each morning and had often seen them. But, if I was going to catch sight of them, I would have to get there early because they were rarely there for long.

So, with great anticipation, I set out at the crack of dawn the next day and found myself at the Crosby Beach parking lot as the sun rose on another gorgeous Cape Cod morning. The wind was calm, the sky was blue and the tide was out, way out. On this part of the Cape the land slopes away very gradually and the sand flats were now revealed as much a half mile out. Was this what made Crosby Beach so appealing to my quarry?

I took a sandy path to the top of the dunes to survey the area. The beach stretched out in an endless arc from east to west. The dunes were not huge, but just enough to create a buffer zone of protection from the wind and surf that left a strip behind them of sand and beach grasses about 100 yards wide. This eventually gave way to a very wide expanse of salt marsh stretching back to the mainland beyond. In the middle of the marsh was an old dead cedar tree with an Osprey nest at the top. It was a rich and varied habitat typical of the Cape and hospitable to many species.



But my species was nowhere to be seen. I stopped and spoke to a morning beach walker. "Oh yes," she said. "I have often seen them here, almost every day. You just have to be patient. They will be along." I walked back to the parking lot and took another path through the "back beach" along the edge of the marsh. Wild beach roses, red and white, were in bloom everywhere. I followed the path along the marsh for another few hundred yards until it again crossed the front dunes and led me back down to the beach.

I noticed the state naturalists had already put up the customary barriers and warning signs to avoid the Piping Plover nesting areas along the front of the dunes. Piping Plovers are an endangered species and beaches are carefully monitored each spring and summer to protect the nests. Plovers are a diminutive species that seem harmless enough as they scurry about at the edge of the surf line searching for food.

But at nesting time they can be a major irritant to some species that would otherwise dominate the beach. Could this be the reason I am not finding my species here today?

I walked the beach back to the parking lot discouraged that I might be wasting my time. I crossed the front dunes again and returned to my car. But then, way over in the far corner of the parking lot something caught my eye. Could it be? I moved closer cautiously. Yes, the signs all looked right. I had found my species, a perfect specimen of *oldfartium aeromodeleri electrofoamus*.



It was a mature male specimen. I approached quickly as I knew this to be a gregarious species. After a short greeting ritual we were soon happily engrossed in conversation. Shortly we were joined by another equally magnificent specimen. Fortunately I had brought along some favorite "toys" to help engage them and we spent another hour and a half talking and flying above the salt marsh and the back beach, which turned out to be their preferred habitat.

I call them Bill and Joe, and they are part of a larger flock of about 15 members (half that number in winter) that can be found flying here above the marsh EVERY morning all year long. Needless to say, I am now the 16th member of the flock.

So, I am flying more now than ever before. But, I really miss those Tuesday morning breakfasts.

Best regards to everyone at Propstoppers. Larry

Pictures and a short video of the habitat.  [Crosby Beach Flyers.mp4](#)

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*No Dues, No Fly!  
We know who you are!  
Current not paid; x out of 45*

## **Membership Renewal For 2014**

*Membership renewal for 2015 is now required. You can renew by mail or at the club meeting in June.*

*Don't lose your club privileges!*

*Bring cash or check and your AMA card.*

*Dues are \$60.*

Please send a check to;

Ray Wopatek  
1004 Green Lane  
Secane, PA. 9018

Please enclose a **copy** of your current  
A. M. A. Membership card,

**And Please, Please enclose a  
Stamped self- addressed envelope.**

**Ray Wopatek Membership**