



# Tuggeranong Target

The friendly community club supporting archers of all disciplines, Olympic to compound, medieval to traditional, catering for families, novices, the enthusiast and the disabled.

Soward Drive, Tuggeranong, ACT

[www.tuggeranongarchery.com.au](http://www.tuggeranongarchery.com.au)

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## Tuggeranong Juniors Development Program — Sat 18 & Sun 19 June 2011

With Armidale hosting the 2012 Youth Nationals in the first week of January, Tuggeranong is formally running a development program for our juniors. The program runs across 2 days on the 3rd Sunday of each month up to Christmas starting at 10am and a BBQ lunch provided. All aspects of archery are to be covered including scoring. Competitions will focus on 36, 60, and 72 arrows and cover target, field and clout. All are welcome.

Steve Caldicott, President

### A word from the President ...

Great news with the ACT Government committing \$2.1m in the ACT Budget for the Tuggeranong Archery Club to build and manage the Tuggeranong Multi-Use Facility. The facility has a footprint that covers over 1800m<sup>2</sup> and features an open archery hall of 42m x 30m, both internal and external canteens, an archery club room with external raised DOS platform to the main shooting line, additional meeting rooms, secure storage areas for trampolines, table tennis tables and fencing piste, and a separate storage area for the outdoor butts, mowers, and equipment. There is also a new home for the Tuggeranong Mens Shed. The development requires a rework of the car parking area and the wonderful spillway for Centrelink's stormwater, as well as full sun and rain protection on both the main and beginners shooting line. The main range will also be floodlight. The aim is for most of the construction to be complete by Christmas this year.

The past few weeks has brought Tuggeranong World Champions, Youth Nationals, and Senior Nationals.

Dakota Smith is now the World Champion and record holder for U/17 longbow after the World Championships at Dubbo in April. Dakota is currently in the USA shooting the Howard Hills Classic event. Well done Dakota.

The Youth Nationals were down in Morwell, Victoria, and the week of shooting was held mostly in sunshine after the rain and flooding the week beforehand and the week afterwards. Red clouts worked in the fog and mist. Well done to our hosts at Twin City Archers and to the ACT and Tuggeranong archers that competed. I had the pleasure of being the Director of Shooting for the week and renewing the friendships that make the Youth Nationals a wonderful annual event every year, even wearing red.

The Senior Nationals were held in Brisbane last week and as evidenced in the photograph, Tuggeranong Archers had a wonderful time despite the thunderstorm on the opening afternoon of competition. The ACT Recurve Team came third which is a wonderful effort and the Compound Women battled for 2nd and 3rd with a point between them and another to 4th. Congratulations to all the ACT archers that competed. Next year the Nationals are being hosted by Tuggeranong from the 24 March and members and friends are more than welcome to help make the event a wonderful experience for all. Tuggeranong has offered to host again in 2013.

Tuggeranong Archery has made a commitment to a Juniors Development Program that will be run across the 3rd weekend each month up to Christmas. The Youth Nationals in 2012 will be in the first week of January at Armidale, NSW. If you would like to shoot well or simply want to shoot with friends and you sort of under 21 then come and join in the Tuggeranong Juniors Development from 10am on Saturday and Sunday. BBQ lunches will be arranged. The program is open to all Juniors in the broader area of the ACT and there will be a range of competitions run across target, field and clout archery on the Tuggeranong Range.

Regarding the Tuggeranong Archery Range, meetings with the ACT Parks, Lands and Conservation have agreed in principle to the issue of a licence to use the broad area for additional archery, field archery and clout areas. The first clout field will be marked out this weekend.

Please note that Canberra Archery Club members have lost access to their range until November as part of the works at Lyneham. Please make them welcome remembering visitor fees and proper sign on are still required.

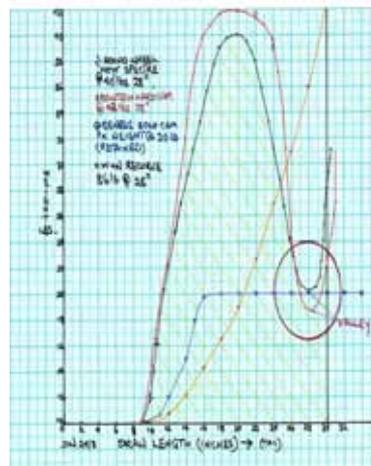
Steve Caldicott



## Coaching corner ....

### Compound Bow set up and tuning – Part 2 - Setup and Basic Tuning & Arrow Rests

The stored energy plots on the right are the plots for three of the bows shown in the first of these 5 articles in the last Tuggeranong target newsletter. The round wheel Hoyt Spectre is the black curve. The fourth orange curve is a 36 lb recurve. Note the difference in the area under each of the curves. This area is the potential energy an archer stores in a bow's limbs at increments of the draw. The red curve is a modern hard cam profile – the Bowtech. Notice how the Bowtech climbs quicker from rest and has a longer storage period over the cam's "roll-over point" effectively extending its power storage sequence, and the bonus energy between the black and red curves at the top of the chart.



To use this energy to best effect, a compound bow needs to be setup and tuned as a balanced system. Both wheels and cams, whatever their design, must be timed to roll over at identical places in the draw/release cycle, just like the valves of a car engine. All compounds use cables to aid the bending of the limbs in harmony with each other, and to control the roll over points for each cam.

If not synchronised then some of the potential energy stored at full draw cannot transfer itself as kinetic energy into the arrow when the bow is fired, reducing the arrow's acceleration speed. Low arrow speed and impact point at the target will result. Bow weight and arrow spine must also be matched for optimum performance.

### Suggested Set-Up Process

There are more items on a compound bow than a recurve. Two cam shaped eccentric wheels rotating on axles, two extra cables that activate the wheels and wear just like any string, and adjustable limb bolts that regulate the peak weight you can adjust into a bow. All bow/limb combinations are rated over their adjustable range. The higher poundage number is the point where the limb bolts are fully turned into the riser. The maximum poundage under target rules for a compound bow is 60 lb.

Step 1. Check the string and cables for obvious wear and any signs of chaffing. This is because a compound is always stored "braced". Recurve bows are not. Chaffing can also occur along the serving runs, mainly around wheels, and over cable sliders.

Step 2. Set your bow to your preferred weight setting. The suggested sequence of balancing your limbs is to wind in the limb bolts so they bottom out very lightly in their threads. You should alternate top and bottom with say 2 turn increments on each bolt. Use a white-out pen to mark the inside top surface of each limb bolt as a future tuning reference point (photo 1 below). This is the bottom limb of a Martin Jaguar 36 inch bow.



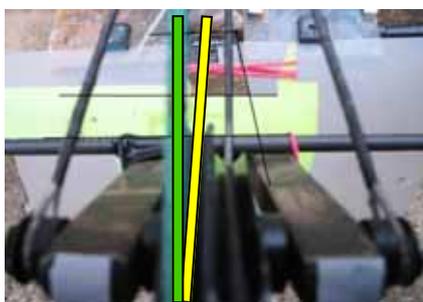
Step 3. Wind out each limb-bolt a couple of turns. This ensures us some adjustment should we need to increase the bow's weight to match a stiff set of arrows. Draw the bow and re-adjust the bolts until the weight "feels" comfortable enough to draw 150 times.

Step 4. With the weight set, the wheel "timing points" can be checked to see if the cables are of the same length and tension for each wheel. All wheels have cut outs in them (most are not solid slabs) that can be used as a gauge of how far the cams settle into the limbs at rest. The front faces of the limbs are used as the comparison point. If these gaps are not equal, then one cable will need to be adjusted until both cable lengths are identical. Photo 2 is the Martin's top limb. The white mark indicates the usual place to judge wheel timings using this simple gap method. When satisfied the wheels are in balance, do a check of the bow tiller distances with a bow square. They should be equal when measured at right angles to the string on the riser end of each limb.



**Safety Note: The only safe way to adjust a braced compound is to use a Bow Press to load the Limbs and remove the tension on the strings and cables. The club has several Bow Presses including several Portable Bow Presses. Members are happy to help you adjust your bow—all you need to do is ask.**

Step 5. If your bow has "Yolked" or split cables on both wheel axles to tune out Limb-Twist then adjustments can be made to eliminate this whilst the bow is in the Bow Press. Limb-Twist occurs in modern bows due to flexible limbs being used to generate increased recovery speeds, by designing axle deflection into a bow. Flexible limb materials/construction aids the quicker axle recovery and transfer of stored energy on a bow's release. Limb-Twists means the axle and string alignment on a wheel is "skewed" and results in binding and loss of arrow speed. The string is angled off its groove, due to twist caused by unequal yolk cable tensions. The two vertical lines show string and its groove misaligned due to twist.



continued ...

## Coaching corner ....

The r/h yoke of this cable required 8 extra turns to shorten it to the desired neutral adjustment. The top only needed 6 turns on one side. When satisfied remove the bow from the press.

The above is a simple tuning sequence. In practice, all compounds will "go out of tune" with use. The white-pen marks on the limb bolts should be checked regularly to see they haven't moved. Even a 1/8 turn movement can affect your groups down range. Most limb bolt threads are now 5/16th inch Whitworth 18 pitch. These have been found to be more durable for the modern higher poundage bows than AMO threads – again 5/16th inch but with a finer 24 pitch. These can pull/strip out under higher poundage demands.

## Selecting a Compound Rest

Selecting a suitable arrow rest is crucial to maximising this bow energy transfer. It is important to only use/select a rest that is suitable for your preferred style of shooting either fingers, or release aid, without or without a string loop.

There are seven rests in the next photo. Only the top three are suitable for finger shooting. Rests 1 and 2 also require a Pressure or Plunger Button to get satisfactory flight and consistent energy transfer. Without a button, Centre-Shot cannot be adjusted, and the arrow will bend on firing and twist off the bow rest. Rest 3 is the classic Martin Springy Rest, which has its own centre shot adjustment by virtue of its mounting thread. All these rests are all still effective today.

Rests 2, 4, 5, 6, and 7 are Launcher Rests.

Rest 4 Barner Inertia and Rest 6 Trophy Taker have drop away capability. Both are shown in the "cocked" position. With the Barner the arrow plate drops when the inertia weight slides forward on active release.

Rest 5 Golden Eagle is a "shoot through prong" design rest and is fully adjustable. Rest 7 is a Cavalier Broadhead with a safety plate to avoid any accidents.

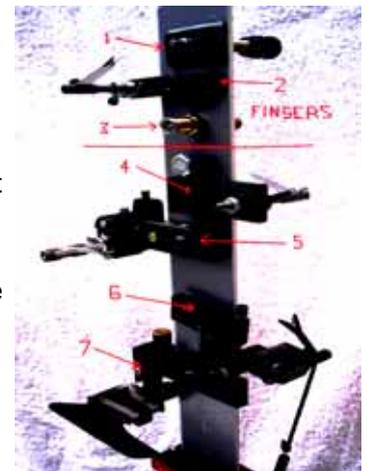
Most designs have alternative blade design options for narrow target arrows and broader hunting and indoor target archery arrows.

Blade rests are the current "rest to have" for competition. These rests are a spring steel plate mounted on a fully adjustable launcher rest. The blades come in varying thicknesses matched to arrow weight and are designed to deflect as fletches pass over it. Blades are available in 3 thicknesses are: .008, .009, and .010 (1,000ths inch), and "Vee groove" shapes/designs vary to match arrow diameter. Arrow weight and bow poundage determines which to use: The smallest blade of .008 is specifically designed for arrows under 325 grains, typically used for target archery. The mid-sized blade size of .009 is designed for arrows of 326 – 425 grains. The largest blade size of .010 is designed for over very heavy arrows with weights over 425 grains. (15.4 grains approx equals 1 gram). Blade rests have a history of being prone to harmonic failure therefore it is advisable to always have a spare or two handy should the blade break.

A rest should not deflect when an arrow is placed on it. If it does, either replace the rest with a stronger blade rest or adjust the spring tension on the rest shaft up to tune this out and restore setup balance. Good quality rests often have a knurled brass adjustment knob on the hinged axle. Undo the Allen screw and take the tension up one hole – usually clockwise. You may need to pull it out just a few mm's as many have a locking pin arrangement. Remember to replace the screw.

Next time we will discuss tuning the bow using a Dynamic Column Loading set-up sequence.

Good shooting — David Waller



## Volunteers Wanted ... Lots to prepare for March 2012



The Nationals Organising Committee at Tuggeranong Archery have been busy for several months planning activities the club needs to do to prepared for 2012.

Club members and friends are now being asked to help and get involved if they can.

With over 6 days of FITA Field archery, there is the need to prepare 200 cardboard Field faces ready for target faces to be glued. Cardboard has been sourced and cut and paper field faces will be distributed in batches of 25 or 50 at a time to those that want to help and can glue.

Another visible activity is the set out of the 7 new dry Clouts in the area beyond the beginners ranges and, in time, rotary hoed with sand. Flags and ropes sets have been made.

For the target, more than 50 frames will need to be made to support the competition target foam butts in 2012 and 2013.

Lastly, please keep your eyes out for several hundred star pickets, wooden garden stakes, and half-inch dowels/tubes.

Rachel Morgan

## Key dates for 2011 ...

July	Sat 23 & Sun 24	National Indoor Championships	Weston Valley Archery Club
August	Sat 20 & Sun 21	Field QRE (to be confirmed)	Tuggeranong Archery Club
	22 to 27	World Youth Championships	Legnica, Poland
	24 to 27	Mallee Sunset Masters	Mallee Sunset Field, Mildura
	31 to 3 Sept	World 3D Championships	Donnesbach-P, Austria
October	3 to 10	Test Event London Olympics	London, UK
	Sat 22 & Sun 23	Steve Roberts (field, target, & novelty)	Tuggeranong Archery Club
November	Sat 5	ACT State Clout Championships	Tuggeranong Archery Club
	Sat 19 & Sun 20	Field QRE (to be confirmed)	Tuggeranong Archery Club

## Key dates for 2012 ...

January	Sun 1 to Sat 7	Australian Youth Championships	Armidale, NSW
February	20 to 26	World Indoor Championships	Las Vegas, USA
March	Sun 25 to Fri 30	Australian National Championships	Tuggeranong Archery Club
	Sat 31 to Sun 1 April	ACT State FITA Field	Tuggeranong Archery Club
July	27 to 12 Aug	Olympic Games Archery	London, UK
August	22 to 28	World Field Championships—FITA	Val d'Isère, France
October	28 to 3 Nov	World Field Championships – ABA/IFAA	Tandil, Argentina

Month	Day	Date	Event	Location	
June	1st	Sat, 4 Jun 2011	Saturday		
		Sun, 5 Jun 2011	Club Field	Club Field (includes SCA, TAC and AA visitors) - may include FITA registered ranking round	
				SCA Target	IKAK (*12 at 40yds *12 at 30yds *12 at 20yds+) 2 ends and 2 speed, Royal Round (*6 at 40yds+*6 at 30yds+*6 at 20yds+) 1 end each and 1 speed at 20, Kings Round (15yds increasing by 5 after each end)
	2nd	Sat, 11 Jun 2011	Saturday		
		Sun, 12 Jun 2011	Club Target	Choice of Hobart (FITA Standard), Perth, Canberra (FITA 900), Short Canberra, Junior Canberra	
				ABA Field	ABA Shoot from 9:30 - Capital Field Archers - Tuggeranong Archery Field Range 1
	3rd	Sat, 18 Jun 2011	TAC Juniors	Tuggeranong Archery Juniors Development Program from 10am on Saturday and Sunday	
		Sun, 19 Jun 2011	TAC Juniors	Tuggeranong Archery Juniors Development Program from 10am on Saturday and Sunday	
				SCA Field	Visitors welcome to enjoy traditional field shooting
	4th	Sat, 25 Jun 2011	Club Working Bee	Club Working Bee	
		Sun, 26 Jun 2011	Club Target	Choice of Hobart (FITA Standard), Perth, Canberra (FITA 900), Short Canberra, Junior Canberra	
				ABA Field	ABA Shoot from 9:30 - Capital Field Archers - Tuggeranong Archery Field Range 1
July	1st	Sat, 2 Jul 2011	Saturday		
		Sun, 3 Jul 2011	Club Field	Club Field (includes SCA, TAC and AA visitors) - may include FITA registered ranking round	
				SCA Target	IKAK (*12 at 40yds *12 at 30yds *12 at 20yds+) 2 ends and 2 speed, Royal Round (*6 at 40yds+*6 at 30yds+*6 at 20yds+) 1 end each and 1 speed at 20, Kings Round (15yds increasing by 5 after each end)
	2nd	Sat, 9 Jul 2011	Saturday		
		Sun, 10 Jul 2011	Club Target	Choice of Hobart (FITA Standard), Perth, Canberra (FITA 900), Short Canberra, Junior Canberra	
				ABA Field	ABA Shoot from 9:30 - Capital Field Archers - Tuggeranong Archery Field Range 1
	3rd	Sat, 16 Jul 2011	TAC Juniors	Tuggeranong Archery Juniors Development Program from 10am on Saturday and Sunday	
		Sun, 17 Jul 2011	TAC Juniors	Tuggeranong Archery Juniors Development Program from 10am on Saturday and Sunday	
				SCA Field	Visitors welcome to enjoy traditional field shooting
	4th	Sat, 23 Jul 2011	FITA Indoor Star	Australian & ACT Indoor Championships - FITA registered - Weston Valley Archery Club	
		Sun, 24 Jul 2011	FITA Indoor Star	Australian & ACT Indoor Championships - FITA registered - Weston Valley Archery Club	
				ABA Field	ABA Shoot from 9:30 - Capital Field Archers - Tuggeranong Archery Field Range 1
5th	Sat, 30 Jul 2011	Club Working Bee	Club Working Bee		
	Sun, 31 Jul 2011	Clout	Visitors welcome to enjoy traditional clout archery shooting		
August	1st	Sat, 6 Aug 2011	Saturday		
		Sun, 7 Aug 2011	Club Field	Club Field (includes SCA, TAC and AA visitors) - may include FITA registered ranking round	
				SCA Target	IKAK (*12 at 40yds *12 at 30yds *12 at 20yds+) 2 ends and 2 speed, Royal Round (*6 at 40yds+*6 at 30yds+*6 at 20yds+) 1 end each and 1 speed at 20, Kings Round (15yds increasing by 5 after each end)
	2nd	Sat, 13 Aug 2011	Club Working Bee	Club Working Bee	
		Sun, 14 Aug 2011	Club Target	Choice of Hobart (FITA Standard), Perth, Canberra (FITA 900), Short Canberra, Junior Canberra	
				ABA Field	ABA Shoot from 9:30 - Capital Field Archers - Tuggeranong Archery Field Range 1
	3rd	Sat, 20 Aug 2011	TAC Juniors	Tuggeranong Archery Juniors Development Program from 10am on Saturday and Sunday	
		Sun, 21 Aug 2011	TAC Juniors	Tuggeranong Archery Juniors Development Program from 10am on Saturday and Sunday	
				QRE Field	Field from 11:30 - FITA Field QRE - Tuggeranong Archery Club
				QRE Field	Field from 11:30 - FITA Field QRE - Tuggeranong Archery Club
	4th	Sat, 27 Aug 2011	Saturday		
		Sun, 28 Aug 2011	Club Target	Choice of Hobart (FITA Standard), Perth, Canberra (FITA 900), Short Canberra, Junior Canberra	
			ABA Field	ABA Shoot from 9:30 - Capital Field Archers - Tuggeranong Archery Field Range 1	

