

If the question is whether aerospace power is effective against ground forces, the answer is “yes.”

True Blue: Behind the Kosovo Numbers Game

By Rebecca Grant

DID NATO airstrikes really hit hundreds of Yugoslav army mobile targets during last year's Kosovo campaign, or was it just a handful? In its May 15, 2000, “The Kosovo Cover-Up” story, *Newsweek* magazine alleged that Air Force investigators working for NATO “suppressed” a report and beefed up claims of successful strikes against Serb army tanks, armored personnel carriers, and artillery during last year's Operation Allied Force.

If the cover-up story sounds too sensational to be true, that is because it is. Air Force and NATO personnel who compiled the study of strike missions in Kosovo not only told the truth, but also put together an impressively detailed account of how NATO turned up the heat on the Yugoslav forces. There was no “suppressed” report—*Newsweek* obtained a working draft of the findings of one part of the Munitions Effectiveness Assessment Team whose mission was to gather information on the effects of various munitions by examining any Serb equipment remaining in Kosovo.

Airplane vs. Tank

Putting aside the emotional overtones, at issue is a very serious point: Can aerospace power strike effectively against an adversary's ground forces? The answer, according to the NATO data, is “yes.”

Underneath the Kosovo contro-



They guessed wrong. Serb armor officers who parked their tanks in this clump of trees mistakenly believed they were well-hidden and safe from NATO air attack. Note that turrets were blown off.

USAF photo



Battle-tested. This F-16 of USAF's 510th Fighter Squadron, based at Aviano AB, Italy, sports mission marks of the Balkan air war. Airmen focused significant attention on mobile targets.

versy is lingering doubt that airplanes can hit tanks, artillery, and other types of vehicles at all. From the technology standpoint, airmen have long since proven they can. Strafing P-47 Thunderbolts chewed up many a German tank in World War II. On one day, Aug. 13, 1944, Lt. Gen. George S. Patton's Third Army reported that supporting XIX Tactical Air Command fighters destroyed 45 German tanks. Aircrews first used laser-guided bombs to strike tanks late in the Vietnam War, specifically in the 1972 airstrikes against the North Vietnamese Easter Offensive. Tank "plinking" became a common sight on television during the 1991 Gulf War when aircraft like the now-retired F-111 put laser spots on Iraqi tanks and destroyed them with 500-lb bombs.

In Kosovo, the whole campaign got off to a slow start. NATO switched from plans for three days of bombing to a sustained campaign designed to inflict retribution on the Yugoslav army and degrade its capabilities. Supreme Allied Commander Gen. Wesley Clark pushed hard for more forces to target the Yugoslav army in Kosovo. But by the time the campaign stepped up, Slobodan Milosevic's forces were dispersed in small knots. Still, by late May, the air war was having an impact on army targets. "What did the trick was the accuracy of the precision weapons, the avoidance of losses, and the increasing destruc-

tion of the Serb forces," said Clark, who was quoted in *The New York Times* on June 5, 1999.

The first cumulative assessment came from a press conference held by Secretary of Defense William Cohen and Chairman of the Joint Chiefs of Staff Gen. Henry H. Shelton on June 10, 1999. Shelton briefed that the damage to fixed targets and to Serb fielded forces was substantial. One of Shelton's charts, widely released, showed a relatively flat tally of mobile targets, then what Shelton described as an "exponential" increase late in the campaign as weather improved and more forces joined in operations over Kosovo. Cohen's and Shelton's estimate raised few questions from the press—until the Serbs fired back.

Serb General Fires Back

On June 16, the Serbs claimed the NATO numbers were inflated. Serb army Lt. Gen. Nebojsa Pavkovic declared that his forces lost only 13 tanks, six armored personnel carriers, and 27 artillery pieces. Earlier, he also claimed to have shot down 47 NATO planes.

Pavkovic's statements fit smoothly into a Serb media campaign that included ample television pictures of cheerful Serbs withdrawing from Kosovo. Reporters in Kosovo watched columns of 60–80 Serb vehicles, including trucks, cars, and ambulances, forming convoys to head north and extrapolated from this that the Serbs

had not been hit hard. Despite their losses, the whole tone of Milosevic's and Pavkovic's statements put up the facade that the army was not beaten. It was not surprising that the losers wanted to save face and keep their reputations intact, at least in the eyes of fellow Serbs. But it was astonishing that credible media like *The Times* of London reported the Serb 13-tank claim uncritically.

NATO's Assessment

While the Serbs were pulling out with a smile for the news cameras, NATO was beginning to go back over the campaign results. Clark consistently stressed that "battle damage bean counting" was not the way to measure the full effects of airpower. NATO achieved its aims, so in one sense the number of artillery pieces hit was not the issue, because, evidently, enough had been hit to help pressure Milosevic to give in.

However, with the Serbs boasting that NATO barely touched them, Clark himself, a four-star Army general, wanted to know what the air campaign had or had not done to the Yugoslav army. Professional curiosity most likely played a role. Clark had once been in charge of combat development in the Army's Training and Doctrine Command, and any Army general would want to know about one of the biggest ongoing issues in military doctrine: How and when is air effective against key mobile forces? Clark said he forced air planners to fly more sorties against the Yugoslav armed forces. He now wanted to review the results, and to all appearances, he drove his staff to give him a meticulous study.

In Desert Storm, the bomb damage assessment methodology began with mission reports. Then "pilot reports had to be supported by either an aircraft-generated videotape recording (VTR) [common name is gun camera video] or imagery produced by other sources," according to the April 1992 Department of Defense report. Ground liaison officers reviewed the claims. After the war, the CIA and others used U-2 pictures to count destroyed vehicles.

For Kosovo, the criteria were tougher and the data were better. The study team of 200 people from different nations and services had three big advantages:

- First, the number of missions



Road kill. This Serb tank was attacked and knocked out while traveling on a Kosovo road. After the first days of attack, Serb units got out of the open and into hiding places.

was fairly small. About 3,000 strike sorties were flown over Kosovo itself. Of those, just under 2,000 generated instances in which aircrews stated they had hit a mobile target. In comparison, there were over 41,000 airstrikes against Iraqi forces in Kuwait during Operation Desert Storm in 1991.

■ Second, NATO had a wealth of sources that enabled the team to say “yea” or “nay” to the tally in each mission report. The assessment did rely on what Clark described as “very sensitive and classified” sources, like imagery from satellites, aircraft, and unmanned aerial vehicles. Talking in detail about satellite pictures is still taboo in the military. Yet in a world where satellite images can be bought over the Internet, it should come as no surprise that military reconnaissance can produce some very crisp images of equipment on the ground.

■ Third, most of the information was in computer databases. Eight years earlier, in Desert Storm, the tracking was done on paper. Having networked computer data helped make the task of tracking and evaluating damage easier. Data, including video and imagery, could be transferred rapidly from Europe to Washington, for example, to feed into the Joint Staff’s daily summaries that were briefed to the Secretary of Defense and the Chairman. After seeing bomb damage assessments for 78 days, top officials were confident

that air warfare was having an impact.

The Kosovo Strike Assessment, produced under the auspices of an Army general, turned out to be the most complete and careful review of strike data in the history of air warfare. Analysts took each aircrew mission report and checked to see if the strikes claimed could be verified by a source other than the aircrew’s memory. Fifteen different types of second-source confirmation were used in the study. Examples included cockpit video, on-site findings, statements from forward air controllers, intelligence reports, post-strike imagery, and other sources.

Backup Sources

The mission report was “validated” as a successful strike only if at least one other source corroborated the mission report. To reiterate: Successful strikes had to have two sources—the aircrew mission report and one other source as described above. All validated strikes had at least two sources. Close to half of the validated strikes actually had three or more sources that backed up the verification. In the end, about half of the total mission reports were unable to be confirmed as successful strikes (which does not mean that some of them were not successful—just that they could not be counted under the strict rules).

Taking into account the operational realities of flying in the Kosovo En-

gagement Zone also puts the strike assessment data in context. Attacks against fielded forces were slow to get started. Only a handful of successful strikes occurred in the first 20 days of the campaign. After that, pilots and planners both spent time looking for targets as the Serbs dug in, moved tanks in between buildings, and stopped traveling in the open. NATO also did not have enough aircraft to operate over Kosovo for more than a few hours per day.

Scrolling through the strike assessment data for each day, the successful strikes are so scattered that it appears the totals cannot possibly add up to much. From late March through mid-May, the sortie rates fluctuated and the hits came piecemeal. By April 30, Day 38 of the campaign, NATO had validated strikes on only 11 tanks, 21 APCs, and 34 artillery pieces. But the situation began to change when more aircraft were deployed for Operation Allied Force and as planners found more targets. Pilots also became familiar with the Kosovo Engagement Zone. By the middle of May, weather improved, more aircraft were flying missions, and aircrews were able to find and hit more targets.

Even then, the hit rates came in as steady rain, not a deluge. The greatest number of validated strikes on tanks in any one day was just seven, on May 30. One or two strikes per day was more typical. On some days, no hits are listed at all for any category.

Finally, there were the big days, like May 22, May 30, and most of the days in June, when 30 or 40 or more hits were validated. From May 13, when strikes increased, to the end of May, an average of 18 successful strikes across all categories occurred each day. From June 1 to the end of the air war on June 9, the average was about 28 successful strikes per day. The day-by-day figures actually back up what pilots said: It took time to find and hit the Yugoslav army forces.

What the numbers suggest is an air campaign that started by scratching at the Serb forces but then struck hard in the last three weeks. And, after 78 days, the numbers did add up to enough to help convince Milosevic to quit Kosovo. The credit can be spread among the NATO allies, which were responsible for about 25 percent of the strikes, the US Navy

carrier air wing, for another 25 percent, and the US Air Force, which had the most planes in theater and conducted about 50 percent of the validated strikes.

Results on the Ground

Still, why didn't the 35-person on-site team find more burned-out hulks? The team visited over 400 sites in Kosovo, examining damage to fixed targets and surveying areas where Yugoslav army forces had been. Although the on-site survey contributed useful evidence, the team arrived in Kosovo too late to compile a definitive assessment.

In a battlefield survey, time is critical. During World War II, when Patton's forces moved in just hours behind coordinated airstrikes, walking the battlefield right after the engagement was the fastest and most accurate way to count up the damage.

In Kosovo, two things were different. First, the quickest way to survey the battlefield was with overhead imagery taken within hours after the airstrikes. That is why the reconnaissance by unmanned aerial vehicles, aircraft, and satellites was so important. Even so, it was a race to get the bomb damage assessment photos before the Serbs moved the equipment damaged by airstrikes. Clearing damaged equipment off the battlefield is standard doctrine for armies everywhere.

Second, the Serbs were long gone before the NATO team hit the ground in Kosovo. The Serbs started with-

The Numbers				
	Tanks/Self-Propelled Guns	Armored Personnel Carriers	Artillery and Mortars	Military Vehicles
Cohen and Shelton (June 1999)	120	220	450	N/A
Serb Military Claims (June 1999)	13	6	27	N/A
NATO (September 1999)	93	153	389	339
<i>Newsweek</i> (May 2000)	14	18	20	N/A

Wide disparity. As the chart demonstrates, Newsweek's figures track closely with those issued by the Serb military.

drawing on June 10, after their commanders had dragged out cease-fire talks for several days. NATO wanted the Serbs out within a week but eventually gave the Serbs until June 20 to complete the withdrawal. For the Serbs, this provided them with the opportunity to carry out what they could salvage. They deployed about a hundred heavy equipment transporters to remove tanks. Considering this, it is not surprising that the on-site survey team did not find much when it began work in early July. What is more surprising is that they found any vehicles at all. In fact, of the 26 tanks and self-propelled guns

left behind and found by the survey team, all were catastrophic kills, meaning there was no point in taking them back to garrison for repair.

With this background, NATO's strike assessment stands as reasonable, and perhaps even conservative. In the end, nearly half of the aircrew mission reports were thrown out because they failed to meet the criteria. Multiple strikes and decoys were factored into the count. If a mission report claimed a hit on a vehicle within two nautical miles of another vehicle strike, it was logged as a multiple strike. Several decoys were struck: a total of 25 out of the grand total of 1,102 validated strikes.

The Losses Hurt

For Milosevic, who had used the Yugoslav army to back up his policies in Kosovo for a decade, the steady losses mattered. "It's no wonder that the Serbs are trying so hard to conceal the damages that NATO did," Clark said at his Sept. 16, 1999, press conference. Clark estimated the Yugoslav army had 350 tanks, 450 armored personnel carriers, and 750 artillery pieces in Kosovo. Over 78 days, NATO airmen scored validated hits on 26 percent of the tanks, 34 percent of the armored personnel carriers, and 47 percent of the artillery pieces.

Journalists want to catch the Pentagon in a "cover-up," but inside the military, the stakes are different. Strike counts matter because the car-

USAF photo



The hulk that remains. Members of a NATO survey team converse with local Kosovo residents at surface-to-air missile site destroyed in a NATO air attack.



Into the fray. Two F-16CGs of the 555th Fighter Squadron, based at Aviano, go hunting for the Serb armor and other mobile targets during Operation Allied Force.

casses of Yugoslav army tanks are pawns in an ongoing chess match between land force doctrine and aerospace doctrine. Fixed targets aren't on the chessboard—it has been conceded for decades that it takes airpower to hit military and industrial targets deep behind enemy lines. But mobile targets are at the center of combat analysis about the best ways to stop an enemy. If it turned out that the US Air Force, Navy, Marines, and NATO allies hit almost nothing, then land force advocates would be able to say that it really does take soldiers on the ground to impact an enemy army. If NATO airmen got good results, then that stands as more evidence that aerospace power is a very efficient tool. Pentagon planning for areas like advanced munitions depends in part on simulation models that estimate the effectiveness of air attacks on ground forces.

A generation ago, a study like the Kosovo Strike Assessment would never have been attempted, simply because the technology to routinely produce accurate airstrikes and copious pictures of the battlespace barely existed. At the same time, no one would have expected just 3,000 sorties over 78 days to generate so many validated strikes. Many studies of World War II, Korea, and Vietnam analyzed the effect of air interdiction, but they all did it from the standpoint of a cumulative approach, sifting through the operational results achieved over time.

Granular analysis of individual mission reports and equipment struck is a new phenomenon. On the one hand, with such resources, the temptation is to create a benchmark, but this temptation should be resisted. Modeling future warfare would be easy if analysts could plug in 17.5 percent as the magic number needed to slow, stop, or destroy an adversary force. Experience suggests that destroying lead vehicles can disrupt a division on the move and sap its initiative. Cold War doctrine held that inflicting 25 percent attrition made a unit combat ineffective.

War Isn't Linear

But as NATO leaders were aware, it is dangerous to assume there is a magic number, especially since goals will vary. Clark and others made it plain that they did not believe destroying military equipment could be placed on a linear scale. The Kosovo Strike Assessment was not done to prove a theory that Milosevic would fold if he lost a certain number of vehicles.

Clark's goal in targeting Yugoslav army forces was to put relentless pressure on Milosevic by hitting his army, which was the agent of his will in

Kosovo, along with important fixed targets, like the electricity grid, approved by NATO in Serbia and Kosovo. NATO's strike assessment confirms three things. First, aerospace power is effective against mobile targets, even when they are dispersed. At the same time, the tough challenges are finding the targets in the first place and keeping up enough air coverage of the battlespace to spot and attack forces that try to maneuver. Second, surveillance has progressed to the point where it is possible to track a highly accurate tally of what is being located and hit. This is valuable information as commanders weigh options and evaluate operations that are under way. Third, the campaign should balance fixed strategic targets and mobile targets. One is not effective without the other. Would Milosevic have capitulated with an army that was still intact and free to maneuver around Kosovo wreaking havoc? The corollary to this lesson is that the number of aircraft needed in theater will be driven by what is needed to hunt and strike ground forces.

NATO's Kosovo Strike Assessment was a fair and accurate portrayal of the impact of the air war on Yugoslav army mobile targets. The cover-up allegation just does not hold up. The Serbs did not shoot down 47 aircraft nor did they lose only 13 tanks to the air war.

The roots of the controversy aside, NATO's strike assessment methodology was rigorous and conservative. It made full use of the most sophisticated, timely intelligence sources at hand. Its day-to-day results make sense given the operational environment for the Kosovo airstrikes: scattered effects, then a crescendo in the last weeks.

Finally, the impact on the Yugoslav army matters. Aerospace power is an efficient tool, not just for US joint forces but for operations with allies. NATO airmen who drew the assignment to hunt and strike Milosevic's forces had to do the job the hard way, but they succeeded nonetheless. This is the real lesson behind the numbers. ■

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