

Sardinia: Cancer, Contamination, and Militarization in Paradise

Need to test some new weapons? Bomb paradise!

The sound of bombs, missiles, and other explosions; massive attacks from the sea onto the beach; an epidemic of cancers and birth defects; soil, air, food and water contaminated with heavy metals, jet fuel and poisons; and national and company secrets that prevent the residents from learning the truth: Is this a modern war zone? No – Sardinia is not at war, but instead is the victim of weapons manufacturers, polluting military activities and a political system that cares about power and money over the health of people and the environment.

Sardinia and it's People

Sardinia is the second largest island in the Mediterranean Sea – a paradise with diverse wildlife, and over 360 species which only exist on this island. Many of the plants have medicinal properties. [\[ii\]](#)¹ It has over 1200 miles of coastline lined with beautiful beaches; over 10 million tourists visit each year. The Sardinian people have immigrated for centuries from all over the Mediterranean and are happy, friendly and welcoming to travelers and new immigrants. Alice Scanu, an environmental engineer and activist who lives in Cagliari said, “We are peaceful people, poor ones maybe, but very welcoming. That's how I'd like Sardinians to be remembered, not as people involved in wars and power games.” In the rural areas, people mostly raise sheep and farm the land and they make magnificent wine, honey, and cheese.

1 Sardinia is the 2nd largest island in the Mediterranean Sea



2 Parco di Porto Conte on the Northwest coast of Sardinia



Military Use and Health Effects on Sardinia

Military occupation is not new to Sardinia - it has been a convenient location for Imperial navies over the centuries because of its strategic location in the Mediterranean Sea. Sardinia has been dominated by Egyptians, Phoenicians and Romans. It has been associated in one form or another with Italy since the Middle Ages. The Italian military represents the safety from “invasions”.

For over 50 years Sardinia has been used by militaries and arms manufacturers for testing new bullets, bombs and missiles; training soldiers; practicing war scenarios; destroying old weapons; and launching bombing sorties, most recently against Libya. [\[iii\]](#)² Seventy percent of Italian military bases are located here [\[iii\]](#)³, and Italian, NATO, and U.S. bases occupy about 1/3 of the area of the island's land and sea. During military practice drills, the area closed to navigation and fishing is about 7200 square miles, almost 2 times the island surface. [\[iv\]](#)⁴

Now there is an epidemic of cancer and other diseases, grossly deformed babies and animals, and long-term contamination of the environment, particularly in and near the military bases. These areas are contaminated with chemicals and heavy metals including jet fuel, napalm, thorium, tungsten, asbestos, white phosphorus and other dangerous substances that are poisonous, radioactive, and highly carcinogenic.

There is unexploded ordnance in unexpected places on the island, in addition to areas near the bases. For example, in 2011 a team of scientists, as part of a European Union effort to improve ecological quality in South European rivers and lakes tried to study the only natural lake on the island, Lake Baratz, in Northwest Sardinia near Porto Ferro. When they found unexploded ordnance on the lake bottom they had to change their study because their original plan was too dangerous. [vi]⁵

Most of the residents are angry, afraid, and frustrated. Sardinians are asking what is causing these problems and want to know what they can do about it. A shepherd analyzed the situation with clear, shocking realism: "I have leukemia, I have only a few months or years of life, I accepted it. Nobody cares about us, and we just do not count for anything. They are powerful; it is better for them if there are fewer of us." [vi]⁶ The shroud of secrecy [vii]⁷ in the name of military, industrial, and national security makes denial easy and investigation difficult.

Peace Activists Visit to Learn about Military Use of Sardinia and Environmental and Health Issues

Carla Goffi, President of [Mouvement Chrétien pour la Paix](#) and Ria Verjauw, member of the Steering Committee of [Belgian and the International Coalition for a ban on \(depleted\) uranium weapons](#) and [Friends of the Earth \(FOE\) Flanders Brussels](#) wrote an excellent report based on their visit to Sardinia in October 2011.⁸



As peace activists who are interested in the relationship between war and the environment, my partner Gerry Condon and I had talked with Carla and Ria and read their report about the military use of the island, the increase in cancers, and the contamination problems. Representing [Veterans For Peace](#), whose mission is to abolish all war, we went to Sardinia from January 5 – 18, 2012 to learn and to try to help. Everywhere we went, people were very glad to see us and receive solidarity from another continent.

We traveled all over the island and heard of families affected by cancer in every location. The victims are mostly people who work at the military bases, have been in the military or shepherds and their families who live in and near the military zones. We met 6 family members of cancer victims who died, all in their mid 20s and three people who have had or now have cancer.

Quirra military firing range

Quirra base and military activities

Salto di Quirra Interagency Polygon (PISQ) military testing area in Southeast Sardinia is the largest military firing range in Europe, 130 square miles. It is the largest Italian military base and has two large land areas. Perdasdefugo, named after the nearby town is inland, and Capo San Lorenzo on the coast together cover 13,000 hectares of land, 10 km of coastline, and have 10 neighboring villages.

The base is used to test-fire artillery rockets, drones, and laser-guided precision bombs. Usually, ballistic missiles and weapons are shot from the Perdasdefugo mountainous zone to Capo San Lorenzo and

the small Quirra islands. [\[ix\]](#)⁹ It is also used to test the effects of explosions and fires on armor and pipelines and to dispose of old weapons including chemical weapons.¹⁰

Three Italian Alfa nuclear-warhead-capable missiles were successfully launched in 1975-1976 from the Quirra base. The Italian program was abandoned after Italy signed the nuclear non-proliferation treaty. [\[xi\]](#)¹¹

We know that depleted uranium was used in a German test in 1984 based on the testimony of Giancarlo Carrusci, the technical manager at the time, who has a movie of the incident. [\[xiii\]](#)¹²

Ammunition, Chemicals and Weapons destroyed at Quirra, contaminating the water and soil

There are a lot of underground rivers in the area of the Quirra base. Since 1980, tons of munitions have been exploded and have contaminated the water reserves. Residents have seen long convoys of trucks entering the military base carrying napalm to be destroyed on the base. [\[xiii\]](#)¹³, [\[xiv\]](#)¹⁴

Riccardo Bocca of L'Espresso newspaper¹⁵ interviewed Mauro Artizzu, who recalls what he saw in 1997 while a conscripted soldier working at the Quirra base. About a mile from the main office was an 80 meter deep hole, "like a volcano crater". In it were articulated vehicles loaded with ammunition and weapons. The military placed charges and proceeded with explosions. "The place around turned white, in May, as if it had snowed." Artizzu says, "Suddenly, the ground was covered with a strange substance. Do you know a piece of foam? But it was heavy." The military put it in barrels and buried it beneath the base. Above, cattle were grazing, and the cows "died because they ate the grass ..." He continues, "The substance released by the explosions, white and heavy, fell on the neighboring countryside" and the wind blew it towards Villaputzu, "So, when the next week it was raining, the white coat was absorbed by the earth and polluted the groundwater." [\[xvi\]](#)¹⁶

Documents from the Italian Air Force show that in the 1980s and 1990s unused weapons from all over Italy were blown up in Quirra. In addition, large quantities of waste have been discovered buried in the arms firing range - containing cadmium lead, antimony, and napalm.

On February 26, 2011, highly radioactive metal boxes were found on the base. They are being analyzed by Paolo Randaccio, a nuclear physicist at the University of Cagliari for their content. [\[xvii\]](#)¹⁷, [\[xviii\]](#)¹⁸, [\[xix\]](#)¹⁹

Truck convoys of unused munitions from the Balkan war arrived at the Quirra base. They were all destroyed after being thrown into a pit 20 acres diameter at Perda Maiore. The explosions were done in open air. There are no mountains that could protect the citizens from contamination. In an area of 2000 m² there is no longer any vegetation. It looks like burned soil.²⁰

Each time there is an explosion the limits of pollution exceed the legal limits of contamination. The whole area is contaminated. The rivers going through the Quirra base end up in the sea. It is not yet known if uranium has been used in the explosions. Thorium and cadmium have, however, been found. Thorium has, unfortunately, been found in Sardinian honey, milk, and other areas of the food chain.

During an explosion, roads are closed for traffic. But this is only for a limited distance, and the winds blow the dust much further. An explosion in Quirra of 30 seconds produces the same pollution/toxic emissions as an incinerator of municipal solid waste (thermal combustion) during one year.

People living nearby are transported by trucks to the borders of the Polygon while explosions are occurring. They are allowed to return the next day. Their livestock remain at home. Researchers have reported that evacuation of the villages, prior to an explosion, is of no use at all. The wind blows the particles much further than the areas that are blocked off and for a longer period of time than the people are told. The toxic clouds of dust go all the way to the highway, the sea and the villages

frequented by tourists.

Thorium and Lead Contamination

There is a high level of lead in the water and the sand at several places on the beaches. [\[xxi\]](#)²¹

Researchers have found a high level of thorium contamination in and near Quirra. [\[xxii\]](#)²² Thorium is a heavy metal, radioactive and highly carcinogenic, which for years was used in military targeting systems. [\[xxiii\]](#)²³

Quirra malformed babies and animals

The number of cancers and birth defects among people and animals is so huge that the situation is known locally as “The Quirra Syndrome”.

Between 1988 and 2002 fourteen children were born with severe malformations in Escalaplano, a small village of 2400 people bordering the Quirra base. [\[xxiv\]](#)²⁴

Throughout the area are also serious malformations in animals: two-headed lambs, calves with deformed legs, a pig with one huge grotesque eye, and other horrors. [\[xxv\]](#)²⁵ A tissue sample from a malformed lamb in Escalaplano was analyzed by Massimo Zucchetti, Professor of Radiation Protection, Department of Energy, Torino Polytechnic Institute. It was found to be contaminated with depleted uranium [\[xxvi\]](#)²⁶, although the military denies its use.



Quirra area cancer

Most of the cancers are Hodgkin's lymphoma and leukemia. Thyroid cancer (15 cases since 1994 in Escalaplano) [\[xxvii\]](#)²⁷ and the rate of autoimmune diseases such as psoriasis [\[xxviii\]](#)²⁸, type 1 diabetes, multiple sclerosis [\[xxix\]](#)²⁹, lupus and rheumatoid arthritis³⁰ are also unexpectedly high.

In the village of Villaputzu bordering the coastal part of the Quirra base with 150 inhabitants, 12 people died from leukemia in 2002 [\[xxxi\]](#)³¹. Forty civilians and 23 soldiers have died of leukemia so far. [\[xxxii\]](#)³² 65% (ten out of eighteen) of workers on farms located within a radius of 2.7 km from Capo San Lorenzo are suffering from serious cancer, of which four were diagnosed in 2009-10, reflecting an increase in the rate of diagnosis. [\[xxxiii\]](#)³³ Workers in seven of the twelve farms have contracted cancer. [\[xxxiv\]](#)³⁴ In the previous decade (1990 – 2000), there had been **no** cases of leukemia or lymphoma among this same population.

Payment for use of Quirra not going to victims or their families

The Italian government receives €50,000 per hour, or up to a €1 million per day from militaries and weapons manufacturers to use the area for bomb and missile testing. [\[xxxv\]](#)³⁵ The money goes only to Rome, while cancers and birth effects go unaddressed in Sardinia. The president of the Region of Sardinia, Ugo Cappellacci, obtained compensation of €10 million from the Italian government as compensation for the problems of the communities, not for victims and their families, so the money is used for community centers and community infrastructure. [\[xxxvi\]](#)³⁶

Visit to Quirra base

On January 14 and 15, 2012 we visited the Quirra base and the small village of Villaputzu with Paola Siddi, who has lived there for 18 years. She developed cancer in 2002 and until 2003 continued to visit her property near the shooting range almost every day to tend her vineyard, orchard, and vegetable

garden. In this community of 150 people, there have been 14 deaths from cancer in the past 10 years³⁷ – lymphoma and leukemia. The sheep are still grazing on contaminated land and the local people sell sheep cheese and grapes for a living. Paola remembered an incident ten years ago where one missile that was supposed to be bombing an island missed and landed near the town; there are still pieces of it here. There are many remnants of weapons testing lying on the ground where the sheep graze. [\[xxxviii\]](#)
³⁸ The journalist Sigfrido Ranucci reports seeing bullets lying around in the bushes and the remains of a missile lying on the ground, only a few feet from the home of two shepherds. ³⁹

Bombings usually occur for a 7 – 10 day period, often aimed at a small island that had previously been larger and is now pulverized and highly contaminated.

We saw dolphins in the bay, so are concerned about marine life as well.

Paola showed us where she lived when she got cancer. There is a small stream that is polluted, and likely contaminated with heavy metals.

There are few fish near the Quirra base, and those that are should not be eaten, so people no longer fish here.

Investigation and Prosecution

On May 12, 2011, State Prosecutor Domenico Fiordalisi opened a court case to stop all military use of the Quirra base. [\[xli\]](#)⁴⁰ Hundreds of shepherds and farmers demonstrated against the case because of the possibility that they would lose their land and have nowhere else to use for grazing and farming. They do not want a handout for unemployment; they just want their land to be uncontaminated and available. Mr. Fiordalisi calls this, “the war of the poor”. [\[xlii\]](#)⁴¹ He ordered 18 bodies of Quirra shepherds who died from cancer between 1995 and 2010 to be exhumed so that the tissues can be tested for uranium and other heavy metals. [\[xliii\]](#)⁴² The nuclear physicist Evandro Lodi Rizzini of Brescia University and CERN (European Organization for Nuclear Research) of Geneva performed the necessary testing. [\[xliv\]](#)⁴³ Radioactive Thorium 232 was found in the tissues of 15 of these bodies, higher than tissues of shepherds who were not in the area of Quirra. [\[xlv\]](#)⁴⁴ Prosecutor Fiordalisi has also seized the medical records of 160 people. On March 24, 2012 Fiordalisi indicted twenty people, including generals, former commanders of the base, and the hazard prevention manager of the base on charges of “willful omission of precautions against injury and aggravated disasters.” Researchers, technicians, and professors at technical universities were indicted because they falsely certified the absence of pollution with the aim to “hide the environmental disaster.” [\[xlv\]](#)⁴⁵, [\[xlvi\]](#)⁴⁶ The documents from Fiordalisi’s investigation have now been turned over to a tribunal for prosecution and further investigation, including discovery of what countries and companies contributed to the problem so that the fines for cleanup can be assigned.

The magistrate in the case has ordered the cleanup of the area; however, when we were there, one day of cleanup had supposedly happened and bombing was to resume the following week. After reading the 160 page scientific report, the magistrate knows that cleanup is necessary. He ruled that the bombing can continue if the area is cleaned.

The problems are by no means limited to the Quirra area.

Teulada, Capo Frasca, and Decimomannu

There are three military areas in the Southwest part of Sardinia: Decimomannu air base, Capo Teulada naval exercise area, and Capo Frasca shooting range.

Decimomannu

Only 15 kilometers from Cagliari, the capital, Decimomannu has the largest NATO air base in the world – it is 3 times the size of any civilian airport, created in 1954 as collaboration between Italy, Germany, Canada, the United States and NATO. Decimomannu houses "Loran" navigation and telecommunications infrastructure and a U.S. Air Force detachment of 150 soldiers from the Aviano Airbase in Northern Italy. The airport is also used to support transport of aircraft of the Military Airlift Command from the United States to the Middle East and Africa.

The military base of Decimomannu has been spilling **jet fuel into the aquifers** for a long time. This fuel contains xylene, benzene and lead, highly dangerous and carcinogenic substances that end up in human bodies through water, air and food. This poison has been widely demonstrated and documented by several surveys and more importantly from the order prohibiting the use of the local wells, issued by Mayor Louis Porceddu in February 2011 [\[xlvii\]](#) ⁴⁷, [\[xlviii\]](#) ⁴⁸. Since then, the residents have not received answers on further analysis and the necessary and urgent remediation. The authorities are silent or circumvent the problem, denying responsibility and expertise. In the meantime, the spill continues unabated, killing the land and putting the people's health in great danger. An alleged reclamation has already cost 900,000 Euros, (although no problem has been solved). Monica Pisano of the Decimomannu Civic Committee "Su Sentidu" said, "It is absolutely ineffective, since it is useless to reclaim the territory if the spill continues!" ⁴⁹

According to Luca Galassi, Decimomannu has a long history of **air accidents** from the end of World War II. Sixty four aircraft have been damaged or have fallen to the ground or at sea, in locations spanning the entire southern Sardinia and 23 pilots have died. She said, "The airport has been and will continue to be a danger to the inhabitants of Sardinia, despite the mocking slogan that stands on the official website of the base: Decimomannu, where the airmen of the free world are being trained to keep the peace." [\[i\]](#) ⁵⁰

On 21 March 2011, the Spanish announced that 3 F-18 aircraft had participated in the UN sanctioned no-fly zone operation over **Libya**. A total of 4 F-18s, along with a single Boeing 707 refueling aircraft was deployed to Decimomannu Air Base on the island of Sardinia for operations over Libya. [\[ii\]](#) ⁵¹

Teulada

Capo Teulada firing range in Southwest Sardinia has been used by Italy, NATO, and the U.S. Sixth Fleet since 1956. The area is used for air and naval exercises (shooting at the coast) and a training center for armored units. Italy's second largest firing range, the base has taken over the whole coast of two entire large peninsulas from Capo Teulada (27 square mile land area) to Capo Frasca (5 square mile land area) in the Gulf of Oristano. [\[iii\]](#) ⁵² It has been revealed in March 2012 that missiles that release asbestos and white phosphorus bullets have been fired in Capo Teulada. [\[iiii\]](#) ⁵³

We visited Teulada on January 15 and 16, 2012 and we went on a casual walk through the Teulada market. Of the several people we met, three women told us of unusual cancer in their family. One woman we met gets 70 Euros per month for herself and her several children after the death of her young husband from lymphoma. Life is very difficult for them now.

While in Teulada, we stayed at an agro-tourism bed and breakfast that is very close to the huge NATO base that covers miles and miles of beautiful coastline. The owner there has thyroid cancer.

Francesco Piras

At a monthly rally in Cagliari against the military bases, we met Giancarlo Piras from Decimomannu, father of Francesco Piras. Francesco died of pancreatic cancer at the age of 27 in 2007. He served for 10 months at Capo Teulada. During his service as a cook, Francesco had to clean up contaminated areas by picking up all unexploded munitions on the ground, as punishment for having raised concerns

about the terrible hygienic conditions in the kitchen. After his military service Francesco became ill, and was diagnosed with cancer. Medical Doctors at the hospital asked him if he had been in contact with radioactive materials.

Antonieta Gatti, Ph.D. in Experimental Physics at the University of Bologna, Italy took biopsies of Francesco's tissues and discovered high quantities of nanoparticles of industrial heavy metals.

Paolo Floris

We also met Paolo Floris, a veteran who in 1998 was 20 years old when he went in the military and served in the same unit as Francesco Piras in Teulada. He is 33 years old now and has Hodgkin's lymphoma. He has been out of the military for one year.

Renzo Putzolu

After leaving Sardinia, we had the pleasure of meeting Renzo Putzolu in his home in Milan. Renzo grew up in Sant'Antioco, only 44 km from Teulada, where as a boy he heard the bombing and explosions. Later (in 1999) he developed leukemia. There are many cases of cancer among the local residents of this part of Sardinia. Fortunately, Renzo's father was a perfect match for a bone marrow transplant and he is now living a normal life with his wife, Roberta. They told us about going to the hospital in Cagliari on Sardinia – there were not enough isolation units to hold all of the cancer patients.

Capo Frasca

The shooting range at Capo Frasca, north of Teulada, has been used by Italian, German, U.K., U.S. and NATO militaries. Between Teulada and Capo Frasca, large parts of the island are used for military exercises. During air and naval testing here, fishermen are prevented from using the area so they get a small amount of unemployment money as compensation. There is unexploded ordnance⁵⁴ in and around the restricted area, which includes both land and sea.⁵⁵ Here too are many unexpected cases of lymphoma and thyroid cancers among nearby residents, soldiers, and workers on the base. There are approximately *18 victims of these cancers in recent years*.

John Madeddu

John Madeddu⁵⁶ worked in the Capo Frasca base from 1968 to 1987. He has diffuse large cell lymphoma. He remembers an area where a large number of bullets accumulated in a clearing. When it rained it created a marsh and the water seeped into the ground. The artesian wells provide water for both the base and the nearby farms. This kind of contamination has continued to build over the years with no clean-up effort undertaken. Animal deformities are common. Cattle still graze here and even if directly hit and killed by weapons with heavy metals these animals are being butchered and eaten. [\[lvii\]](#)
⁵⁷

La Maddalena

La Maddalena is an archipelago located only 2 km Northeast of Sardinia, with seven islands and many islets. The population of 17,000 swells to 75,000 during the summer, when the tourists come to enjoy the campgrounds, beautiful beaches and lovely hiking trails.

La Maddalena Island has served as a strategic military point for many centuries, including pirates in the middle ages. There are some 50 forts on the island, most of which have been abandoned. The Sardinians successfully repelled the army of Napoleon Bonaparte from Santo Stefano Island in 1789.

The United States tried in 1822 to obtain La Maddalena as a base to protect its shipping from pirates in the Mediterranean. The Sardinians refused the request as they were building their own naval base here.

In 1972 the Italian government permitted a NATO base to be built on Santo Stefano Island. The NATO base housed an Italian Navy barracks and it served as the home port for several US Navy submarines. The US Naval Base officially closed in January 2008. [\[lviii\]](#)⁵⁸

When we visited La Maddalena Island January 17 and 18, 2012, we were told about an accident; in 2003, the nuclear powered submarine U.S.S. Hartford struck a rock. According to our hosts, it triggered the only earthquake that Sardinia has ever known. [\[lix\]](#)⁵⁹ [\[lx\]](#)⁶⁰ After initially denying that anything had happened pressure from other governments and scientists forced the U.S. military to reveal the cause of this earthquake. The submarine had damage to its rudders, sonar and electronics – that’s the official story – however, residents suspect that even greater damage was done.

Massimo Zucchetti, Professor at the Department of Energy at the Torino Polytechnic and his team analyzed algae in the archipelago. The presence of radioactive alpha particles and plutonium traces were found, sometimes in high concentrations. This contamination is due to either a continuous loss of pollutant from the submarine base, or to environmental releases that took place during the USS Hartford accident. [\[lxi\]](#)⁶¹ On January 20, 2004, the “schwäbische Zeitung” newspaper reported that there was an alarming high amount of radioactivity in the water near La Maddalena Island. [\[lxii\]](#)⁶²

The U.S. military closed the La Maddalena base in 2008 without cleaning, decontaminating, or restoring vegetation to its previous condition. One problem is that although some money has been sent to Italy to cover decontamination, 90% of it is put into the pocket of corrupt politicians instead of being used for the intended purpose.

Radar Stations

There are about 15 Radar stations all over the island, on the top of the mountains surrounding the bases. Some say that they are needed to calculate mathematic points of the routes of missiles when fired. Others say that they serve to control the Mediterranean area, all the way to Africa. Many fear that the electromagnetic radiation emitted by the radar station is dangerous and want their use stopped. [\[lxiii\]](#)⁶³

Cause of Cancers

Discovering and proving the cause of the cancers and birth defects in Sardinia is difficult, partly because the militaries and companies using the bases don’t have to report on what they are testing and what it is made of. There are also national security secrets that protect them from revealing the truth.

There are many possible cancer causes. Some of the soldiers on Sardinia who developed cancer were exposed to depleted uranium in Iraq, Afghanistan, Somalia and Bosnia. [\[lxiv\]](#)⁶⁴

We spoke to Fernando Codenesu, Professor at the Department of Energy at the Torino Polytechnic, who explained that Sardinia has rocks that are very fragile and contain heavy metals. An explosion breaks the rocks into micro and nano-particles containing these heavy metals. These in turn are blown in the wind, contaminate the groundwater; people and animals breathe them into their bodies. Depleted uranium is particularly volatile and vaporizes, so is difficult to detect in the environment. Since some of these heavy metals may exist as background in the environment, it is difficult to prove that the contamination is because of the materials that the weapons are made from, such as depleted uranium, thorium and tungsten.

Mr. Codenesu is one of six scientists who studied 26,000 square kilometers around the Quirra base and produced a 160 page report, “Project for environmental characterization and health in areas adjacent to the base of Salto di Quirra – Joint Technical Committee of Experts Final Report”, released June 14, 2011. These experts researched radioactivity; electromagnetic radiation; soil; surface and sea and

ground water; plants, animals and products made from them; and fine particles in the environment.

People have speculated that a reason for some health problems is the Bacchu Locci arsenic mine in the Quirra area close to the village of Perdasdefogu. However, it was closed a half century ago, and the lead-arsenic-sulfide ore deposits, although highly toxic and carcinogenic, do not cause the same kind of cancer seen in the shepherds and military personnel working on the Quirra base.⁶⁵ Other than military use and the arsenic mine, there is no other industrial activity near the Quirra base that could be the cause of the cancers and birth defects there. [\[lxvii\]](#)⁶⁶

Only 20 km from the capital of Cagliari in Southeast Sardinia is the Sarroch oil refinery. It has the highest production capacity of any Mediterranean refinery and a refining capacity of about 15 million tons per year, the equivalent of 15% of the total capacity of Italian refineries. Again, although pollution from the refinery might cause some of the health and environmental problems, they are not the same as what is seen in the population.

Some of the cases of cancer on the island are due to chemical and heavy metal exposure of soldiers during wars in the Balkans, Iraq, and Afghanistan. Financial compensation has been ordered for the cancer victims and their families for this exposure, although only one family has so far received any money.

Valery Melis

We met the parents of Valery Melis at a monthly protest against the bases in Cagliari. Valery was one of the victims of use of depleted uranium in the Balkan war and died in 2004 at the age of 26 of Hodgkin's lymphoma, a long four-year, heartbreaking death, where the family felt totally abandoned by the state. As a Corporal in the Italian army, he served in the Balkan war in an area where depleted uranium was used. He returned from the war in 1999. We met his parents at a rally in Cagliari. Dr. Antonietta Gatti, Ph.D. in Experimental Physics at the University of Bologna, found nano-particles of heavy metals in his body. [\[lxviii\]](#)⁶⁷

Interview with Dr. Antonietta Gatti

Ria Verjauw, member of the Belgian Coalition and FOE Flanders Brussels interviewed Dr. Antonietta Gatti about Sardinia contamination in October 2011. Rio asked Dr. Gatti, "Which weapons were used?" Dr. Gatti replied, "Radio tracers. Thorium is used, yes. I found contamination, carcinogenic agents in the tissues of military personnel. Iron, lead, tungsten, and copper in the tissues of citizens and also in the tissues of sheep. I never found any radioactive substance. There is military war pollution in Sardinia, due to military activities. Decontamination is impossible. Rain leads to the contamination of the soil. Through air pollution, other countries that are not involved in the testing are contaminated as well. No standards of sea pollution exist; there is no data on this, but the sea is polluted. Local governments do not warn people when there are testing activities; they do testing even at night." [\[lxviii\]](#)⁶⁸

Dr. Gatti also said, "I know of 1200 cases of cancer. Amongst them are 140 soldiers."

Health Effects of Depleted Uranium and Thorium

Although it is controversial to say that Sardinia is contaminated with depleted uranium or thorium, here are some indications:

- The 1984 failed test of a German missile with a depleted uranium warhead has been officially revealed to the public.
- The former La Maddalena nuclear submarine base has algae which radiate alpha particles and pollution by uranium and plutonium are suspected as well.

- The tissues of a dead malformed lamb from the Quirra base were found to contain depleted uranium by Prof. Massimo Zucchetti.
- The bones of shepherds who lived near the Quirra base and died of cancer were found to contain Thorium 232 by Nuclear physicist Professor Evandro Lodi Rizzini of the University of Brescia and at CERN in Geneva.

Therefore, it would be good to note the effects of depleted uranium, thorium, and other elements that emit alpha particles on the body.

Dr. Rizzini was asked, "Is depleted uranium dangerous?" He replied, "One micro-gram, that is, one millionth of a gram is sufficient to kill a person. It causes a rise in atomic disintegrations; with a production of 2000 **alpha** rays a day, nuclear radiation is most damaging." [lxi]⁶⁹

According to Dr Ian Fairlie of [International Coalition to Ban Uranium Weapons](#)⁷⁰, "Inside the body, **alpha** radiation is incredibly disruptive. The heavy, highly charged particles leave a trail of ionised free radicals in their wake, disrupting finely tuned cellular processes. In one day, one microgram, (one millionth of a gram), of pure DU can release 1000 alpha particles. Each particle is charged with more than four million electron volts of energy; this goes directly into whichever organ or tissue it is lodged in. It only requires 6 to 10 electron volts to break a DNA strand in a cell and these emissions cover a sphere with a radius of 6 cells." [lxi]⁷¹

Two web sites, www.bandepleteduranium.org and www.motherearth.org/du have good information about depleted uranium.

Solutions

In meeting with Paolo Carta from the newspaper L'Union Sarda and in the demonstration against the bases that we attended in Cagliari, we learned of the solutions that people want implemented:

- Transparency and truth – tell the people and the governments what chemicals and metals have been used in testing – exactly what happened in each test and military activity – some data may have been lost in the more than 50 years of use of the island for military purposes, but as much as possible must be disclosed.
- Close all of the bases – stop using Sardinia for testing and military exercises and radar facilities – completely de-militarize the island.
- Clean and decontaminate the bases and land and sea around them. This will be expensive but is only right – restore the land, water including aquifer and seabed.
- Provide health care to all people affected by military activity on the island – all people with lymphoma, leukemia, thyroid cancer, and other diseases that are likely to have been caused by the military activities should receive health care paid for by the governments and companies that have polluted the island.
- Provide financial assistance to farmers and fishers – clean land and a new home for farmers who might have to relocate temporarily during cleanup or permanently if land cannot be decontaminated. Unemployment benefits for any period of time that they could not farm or fish.

Political Action

There are political movements on the island that are helping.

Cagliari – Monthly Rally with Cancer Victims and their Families



We had the privilege of attending the monthly rally against the bases on January 15, 2012 in Cagliari at Piazza del Carmine. It is organized by victims of cancer and their families and those opposed to military use of Sardinia. Participants at the Action Day want:

- Evacuation and closure of the military bases
- Rehabilitation of contaminated areas
- Compensation for victims and their families

• **Committee of Parents of Fallen Soldiers in Times of Peace**

Participating in the monthly actions is Giancarlo Piras, mentioned earlier, father of the cancer victim Francisco Piras. Giancarlo met with other parents of deceased children (who had done their military service in Sardinia and in the Balkans) and founded the organization “Comitato Genitori Vittime uranio impoverito” ([Committee of Parents of Fallen soldiers in times of peace](#)). Giancarlo says, “Here in Sardinia, we are confronted with war victims but in a peaceful area. We like to call this area the zone for preparing new wars”. He points out that existing law is that the government needs to know what kind of weapons/materials have been tested in the Polygons. The reality is that none of the armies give information about the tests and hide under the umbrella of ‘military secrecy’. The US army makes its own ‘auto certificates’ about the weapons they are testing. No one has any control on the accuracy of these documents._

Protesters Prevent New Radar Installations

Some people are working against radar installations, as they are considered dangerous, there are many of them already on the island, and the military has lied to the people about why they want to build more of them; the people don’t want them.

[2 Capo San Marco, where people are demonstrating against a planned radar site](#)

People are now demonstrating against possible construction of radar sites at Capo Sandalo, Capo Sant’Elia (Cagliari), Capo Caccia and Capo

San Marco.

Capo San Marco is a peninsula in the Southwest part of the island, which already has a restricted military zone blighting the landscape. It is a beautiful area with the oldest church in Sardinia and an important archeological park.



We participated in a protest walk there on January 7, 2012 and they were extremely happy to have Veterans For Peace activists from the U.S. with them. My partner Gerry Condon was invited to speak on behalf of Veterans For Peace, and his message of international solidarity was well received by the hundreds of people who were there. Local officials later went on record against the radar

installations in Capo San Marco and Capo Testa.

Also a main Italian Party (Partito Democratico) took an official position against the radar installation in Campo San Marco in the regional council. [\[lxxii\]](#) ⁷²

Four radar sites (Capo Sperone, Capo Pecora, Ischia Ruja and Argentiera) will not be built because of the rejection of those sites by the people.

Fishermen Bring Naval Exercises to a Halt

Since the 1990s fishermen have been pushed out of their profession by NATO naval exercises and have become activists for their right to use the sea. At the end of the 1990s they won a trial and were awarded payment for their loss of wages during war games. However, the payments were infrequent and small.

At the same time, the militaries extended the area of the sea restricted for military use only, and consequently rendered traditional fishing activities impossible.

The fishermen resumed protesting in 2002. There was picketing at the port and base entrance, actions to slow down the military traffic and actions to stop the war activities.

Stubbornly, daily, when the wind allowed it, the fishermen challenged the restrictions and the bombs, directing their boats into the heart of the war game area and threw their fishing nets in a prohibited sea saturated by war ships.

Their demands are simple: the right to a dignified work, the right to have the stolen sea back, the right to the safety and to a clean sea and environment.⁷³

In 2004 a group of fishermen protested the closure of fishing areas near Capo Teulada during a ten day NATO naval exercise. Fortunately, they found out that it only takes one civilian boat to stop the naval exercise. They said they wanted to be able to fish all year around so that they would not be forced to steal just to eat. They negotiated with the government, who agreed to pay them for their loss of ability to fish during the military exercise, but they don't want the handout, they want to fish. Soon additional fishermen in nearby villages were also demanding compensation.

Again on October 4, 2005 a fleet of ten civilian boats started protesting for territorial fishing rights and seeking financial compensation for lost work. They defied the ban on fishing during military activities – the number of boats increased to 42 during the week of the protest, and forced some operations of a NATO naval exercise to grind to a halt off the southwestern coast of Sardinia, Italy. [lxxiv]⁷⁴

Sardinian Independence Movement

Some residents believe that the only solution is to restore complete independence and self governance. One of those groups, called *Natzione Sardinia* is one of the first movements to fight a modern struggle for Independence of the Sardinian people. Last year this group campaigned for a public consultation against the installation of nuclear power plants in Sardinia; 95% voted against nuclear power. Sardinia joined the Kingdom of Italy in 1861, but is a special autonomous zone. It has been occupied by people for over 8000 years and has been ruled by the Phoenicians, Romans, and Spanish and others. It has also had long periods of independence. Many Sardinians do not even see themselves as part of Italy. People who do not feel that independence is a viable option are still angry that Italy treats Sardinia like a colony. Even the United States has an imperial attitude toward Sardinia: The Central Intelligence Agency in 1970 said, "Italy is a mega carrier which overlooks the Mediterranean, leans to the east and peers on the Middle East. Inside this mega carrier is Sardinia, part of the aircraft carrier but has the annoying problem of people and cities." [lxxv]⁷⁵

Italian Democratic Party (Partito Democratico) calls for closure or conversion of bases

In an encouraging new development in March 2012, Senator Gian Piero Scanu called for closing the bases in Capo Frasca and Capo Teulada, and for environmental requalification of the Quirra base back to its previous designation as a technical-scientific research center. This letter was signed by over 100 Senators of many political parties. [lxxvii]⁷⁶ Unfortunately, there is now talk of using Quirra as a base for drone research, which will require more radar installations, will cause noise pollution, and other problems.

Media coverage

The Sardinian newspapers have published articles about the deformities and high rates of cancer, so everyone on the island is aware of this problem. L'Union Sardo has been particularly good about publishing articles regarding the cancer, birth defects, contamination, and military use of Sardinia.

Countries and companies that use the Sardinian bases

As mentioned, many countries have used the Sardinian bases for testing or military exercises – in addition to NATO and Italy, the bases have been used by the United States, Libya, Germany, Switzerland, England and Canada.

The State Prosecutor of Lanusei, Domenico Fiordalisi has a more complete list of countries and companies, but Vitrociset stands out because they do so much of the operational work to test the missiles. From their own web site, "Vitrociset assisted the Italian Defence Ministry throughout the deployment phases of the "PISQ" Fire Test Range in Sardinia, such as design, creation and installation of sensors/systems and installations ever since its establishment, which started 50 years ago."

In my research, I find that most bombs, missiles, aircraft, and even spacecraft made primarily in Europe since World War II have been tested, presented to customers, or launched from Sardinia. Therefore, the list of countries and companies is very extensive.

Other islands are also affected by military activities

Vieques Island, Puerto Rico

Vieques Island, Puerto Rico is another island that was used for military purposes for over 50 years, from 1941. The base on Vieques Island was used for live training exercises, ship-to-shore gunfire, air-to-ground bombing, an ammunition depot and a dumping ground for 10,000 tons of toxic waste. It was bombed an average of 180 days per year.

Outcry from the people and politicians finally resulted in closure of the base in 2003 ⁷⁷. A bill in the U.S. House of Representatives to provide for health care and compensation for people made ill by the contamination. H.R. 1645: Vieques Recovery and Development Act of 2011 would, if passed, provide for construction of a hospital and toxic research center as well as monetary compensation for their suffering. The bill has been introduced and referred to committee; however, most bills never proceed past this point. [lxxviii] ⁷⁸

The U.S. Environmental Protection Agency has found unexploded ordnance, remnants of exploded ordnance, mercury, lead, copper, magnesium, lithium, napalm, depleted uranium, and possibly pesticides and solvents contaminating Vieques. [lxxix] ⁷⁹

The U.S. Navy started looking for a replacement for Vieques in 2000 and Sardinia was one of the main candidates. It is interesting to note that most of the problems in Sardinia escalated after the year 2000.

Kwajalein Atoll

Eleven of the 97 islands in the Kwajalein Atoll in the Marshall Islands in the Southern Pacific ocean are part of the Ronald Reagan Ballistic Missile Defense Test Site. It is clear that the U.S. intends to continue to use the islands for military purposes well into the future, although the number of military personnel is declining due to the ability to control the tests remotely. Due to its previous occupation by Japan, Kwajalein was the target of the most concentrated bombardment of the Pacific part of World War II – on February 1, 1944. Thirty-six thousand shells from naval ships and ground artillery on a nearby islet hit Kwajalein. American B-24 Liberator bombers aerially bombarded the island, adding to the destruction.⁸⁰

Barking Sands, Kauai, Hawaii

The Pacific Missile Range Facility at Barking Sands, Kauai, Hawaii, is another huge missile testing and training range for U.S. Military and contractors. They track submarines, ships, aircraft and space vehicles and control 42,000 square miles of airspace. ⁸¹

Jeju Island, South Korea

There is huge public outcry against the new joint South Korean and U.S. military base to be built on Jeju Island, South Korea for joint military training exercises. The residents of Gangjeong village have used their bodies to block bulldozers and cement trucks, sacrificed their personal freedom, been beaten and imprisoned, and paid heavy fines. Veterans For Peace recently sent members of its Veterans Peace Team to work in conjunction with local resistance efforts. People on both sides of the ocean realize that international solidarity will be one key to winning these struggles against the bombing of paradise. Even though the Veterans Peace Team was prevented from reaching Jeju Island by the South Korean military, the message of solidarity was received and gives more hope to those struggling against this environmental and cultural disaster. [\[lxxxii\]](#) ⁸²